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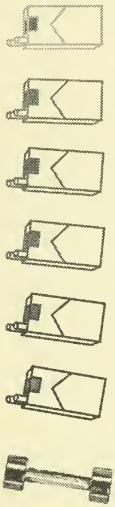
Massachusetts

Behavioral Risk Factor Survey

1991 Summary Report



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Chronic Disease Surveillance Program

October 1993

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF HEALTH AND HUMAN SERVICES
DEPARTMENT OF PUBLIC HEALTH

Massachusetts Behavioral Risk Factor Survey 1991 Summary Report

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We also wish to express our gratitude to the residents of Massachusetts who participated in this survey.

Additional information concerning the Behavioral Risk Factor Surveillance System, and copies of this report may be obtained from:

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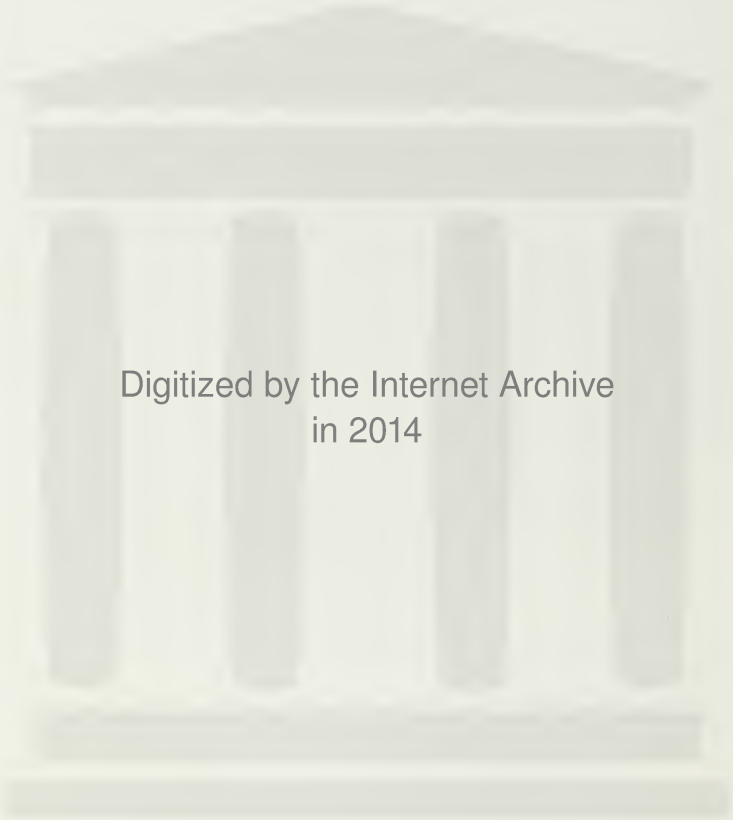
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Executive Summary

Since 1986, Massachusetts has conducted the Behavioral Risk Factor Surveillance System (BRFSS), a representative, state-wide telephone survey of Massachusetts residents 18 years and older. It currently consists of approximately 120 interviews per month which target key health risk behaviors. Analysis of trends over time indicate that for most health behaviors, residents are adopting healthier lifestyles.

A summary of the state-wide prevalence and national prevalence estimates, computed for the 48 participating states, is shown in Table 1. Massachusetts fared better than other BRFSS states in the prevalence of leisure time physical activity, cholesterol screening, medical insurance coverage, and mammography and breast physical exams among women 40 and over. The prevalence of cigarette use, driving after drinking, being overweight, and blood pressure and cervical cancer screening were about the same in Massachusetts compared to other BRFSS states. Areas in which Massachusetts fared worse compared to other BRFSS states included prevalence of seat belt use, binge drinking and chronic drinking.

While Massachusetts fares well on many health risks in comparison to other states, citizens of the Commonwealth continue to engage in some health risk behaviors at levels above the national goals for the year 2000. But perhaps more concerning than the general picture are the health risk profiles within certain subpopulations. Younger adults (below age 35), persons with less than a high school education, and persons with household incomes below $15,000 incur disproportionately higher risks of premature death, disability and extensive hospitalization costs as indicated by elevated prevalence estimates for these groups.

Programs which encourage primary disease prevention and health promotion and develop creative and culturally-sensitive approaches to health promotion are being implemented by the state. These programs have achieved some success, but much remains to be done.

1991 BRFSS Highlights

Risk Factors:

Seat Belt Use

- Forty four percent of Massachusetts residents do not use seat belts most or all of the time when riding in a car. Men under age 25 and residents with a high school education or less, or with household incomes under $15,000 were more likely to ride unbuckled. *Massachusetts ranked 6th worst among BRFSS states in the prevalence of regular seat belt use.*

Current Cigarette Smoking

- Nearly a quarter (23%) of adults were current cigarette smokers. Smokers were most likely to be young women, residents with less than a college education, or residents with mid- and lower- household incomes (under $35,000). *Massachusetts ranked near the middle of BRFSS states in the prevalence of current cigarette smoking.*

Former and Relapse Smokers

- Among residents who had ever smoked, 53% had quit smoking by 1991. Most of these former smokers were likely to be older adults (aged 45+), have higher household incomes or have more than 16 years of education.

Binge Drinking

- Twenty two percent of the Massachusetts population reported consuming 5 or more alcoholic drinks on a single occasion within the past month. Nearly half (49%) of young men (aged 25-34) reported "binge" drinking. *Massachusetts ranked 4th worst among BRFSS states in the prevalence of reported binge drinking.*

Chronic Drinking

- Overall, 5.6% of adults reported having consumed 60 or more alcoholic drinks within the past month. Ten percent of male residents reported chronic drinking. Chronic drinkers were more likely to be male and under age 45 years or with at least a high school education. *Massachusetts ranked 2nd worst among BRFSS states in the prevalence of reported chronic drinking.*

Driving After Drinking

- Three percent of all residents and 4% of male residents reported driving after perhaps having too much to drink. Men between the ages of 25 and 34 years and those with a college education were most likely to report driving after drinking. *Massachusetts ranked near the middle of all BRFSS states in the prevalence of reported driving after perhaps having had too much to drink.*

No Leisure Time Physical Activity

- Nearly a quarter (24%) of residents did not engage in leisure time physical activity. Groups most likely to be inactive were the elderly (aged 65+), those without a high school education, or those with lower household incomes (under $15,000). *Massachusetts did better than most states in the prevalence of adults who reported no physical activity ranking 13th out of 48 states.*

Overweight

- Based on self-reported height and weight measures, 21% of the Massachusetts population was calculated to be above ideal body weight. *Massachusetts ranked near the middle of all the BRFSS states in the prevalence of overweight adults.*

Fruit and Vegetable Consumption

- Seventy six percent of the adult population reported not consuming 5 servings of fruits and vegetable per day.

Screening:

Cholesterol Screening

- The majority of Massachusetts adults had their cholesterol checked within the past five years. However, 34% still reported not having a recent blood cholesterol check. *Massachusetts ranked 6th best out of all the BRFSS states in the prevalence of recent blood cholesterol checks.*

Blood Pressure Screening

- The vast majority of residents (95%) had their blood pressures checked within the past 2 years. However, nearly 10% of men under age 45 had unchecked blood pressure levels. *Massachusetts ranked near the middle of all BRFSS states in the prevalence of unchecked blood pressure levels.*

Medically Uninsured

- Ten percent of the Massachusetts population reported having no health care plan of any kind. Among young adults (aged 18-24), 22% were uninsured. One out of three uninsured residents reported not seeking necessary health care due to cost. *However, Massachusetts did better than most states ranking 6th best among all BRFSS states in the prevalence of adults reporting any kind of health insurance.*

Women's Health:

Breast Cancer Screening

- Fifty six percent of women 40-49 received a breast physical exam within the past year and a mammogram within the past 2 years. However, 1 out of 2 older women (aged 65+) did not receive the mammography and breast exam screenings as recommended by the American Cancer Society. *Massachusetts ranked 10th best of all the BRFSS states in the prevalence of women aged 40 and older who had ever had both a breast physical exam and a mammogram, and ranked 3rd best among all the BRFSS states in the prevalence of women aged 50 and older who had a breast physical exam and a mammogram within the past 2 years.*

Cervical Cancer Screening

- Ninety six percent of women reported ever having a pap smear test and 90% had a pap smear within the past 3 years. However, 1 out of 4 women 65 years and older did not have a pap smear test within 3 years. *Massachusetts ranked near the middle of all the BRFSS states in the prevalence of women who had ever had a pap smear.*

Table 1. Comparison of the prevalence of selected behavioral risk factors and preventive health measures between the United States and Massachusetts, BRFSS 1991

	Massachusetts prevalence	National BRFSS prevalence
	%	%
Does not use seat belt regularly	44	24
Current cigarette smoker	23	23
Drank 5 or more alcoholic drinks at one occasion in past month	22	14
Drank 60 or more alcoholic drinks in past month	6	3
Drove vehicle after consumption of alcohol in past month	3	2
Overweight	21	23
No leisure time physical activity	24	28
Unchecked cholesterol with 5 years	34	36
Unchecked blood pressure within 2 years	5	6
Never had mammogram/breast exam (women 40 and over)	24	30
Did not have recent mammogram/ breast exam (woman 50 and over)	32	42
No health insurance	10	14
Never had pap smear test	4*	8

* Restricted to woman who have heard of a pap test.

Introduction

Each year thousands of Massachusetts residents die prematurely from heart diseases, cancer or motor vehicle-related injuries. A significant proportion of adults in the Commonwealth report that they engage in health behaviors that place them at an increased, but potentially avoidable, risk for chronic diseases or unintentional injuries. The goal of primary disease prevention programs is to reduce premature death from injuries and chronic diseases by reducing behaviors, such as smoking, alcohol use, sedentary lifestyle, and poor eating habits, known to be associated with chronic disease, as well as by promoting the use of screening exams for early detection of cancer, hypertension and diabetes. Such programs are benefitted by access to standardized, periodic measures of risk behaviors among specific sub-populations in order to monitor the change in these behaviors over time.

In 1986 the Massachusetts Department of Public Health, in cooperation with the Centers for Disease Control and Prevention (CDC), began participation in the Behavioral Risk Factor Surveillance System (BRFSS).[1] The purpose of the BRFSS is to provide state-level prevalence data on health-related behaviors and attitudes in an ongoing effort to plan and develop health promotion and disease prevention programs. In 1991, 47 states and the District of Columbia participated in the BRFSS. The data presented in this report were collected as part of the 1991 Massachusetts BRFSS.

The primary purpose of this report is to monitor Massachusetts' progress toward achieving the Healthy People 2000 national health objectives[2]. Secondarily, this report summarizes the 1991 data and updates previous BRFSS data published by the Massachusetts Department of Public Health[3].

The BRFSS is the only ongoing source of state-level data which addresses many of the key modifiable risks to health. Data from this report will be used by public health program planners to develop and target programs to the appropriate groups and establish baselines to monitor progress of health promotion activities. They may also be used by researchers interested in the prevalence and change over time in chronic disease risk factors such as cigarette smoking, overweight, physical inactivity, seat belt use, mammography and Pap smear screening. In other states, BRFSS data have been used to support change in legislation regarding seat belt and tobacco smoking regulations.

More in-depth analyses of particular risk behaviors will be presented in the future as separate mini-reports. Individuals seeking additional information on these data or requesting special analysis of the data may contact the Chronic Disease Surveillance Program at the Massachusetts Department of Public Health.

The complex patterns of behaviors, as they vary by age, gender, and educational level demonstrate the need for collecting, analyzing, and disseminating data, such as these, as part of the overall public health effort. Our attempts to improve public health and motivate health behavior changes will be more effective as we become better informed regarding which groups are most at risk and how behaviors change over time.

Methods

The 1991 BRFSS questionnaire, developed by the CDC and administered by all participating states, had 13 sections which included information on demographic characteristics, seat belt use, hypertension detection and control, physical activity, weight control, cigarette use, alcohol consumption, preventive health measures, health insurance coverage, mammography and breast physical examination, cervical cancer screening, fruit and vegetable consumption, and HIV/AIDS knowledge and attitudes. This report covers a subset of these topic areas. A copy of the entire 1991 BRFSS questionnaire is provided in Appendix I.

Massachusetts BRFSS data were collected by use of a standardized telephone questionnaire under contract by Wisconsin Survey Research Laboratories, Madison, WI. A stratified random-digit dial telephone protocol was used to identify eligible households. One adult (18 years or older) from each eligible household was randomly selected to participate in the survey. Among contacted individuals from eligible households, 65.2% agreed to participate.

All data (unless otherwise noted) in this report were age- and sex- adjusted to the 1990 Massachusetts population by use of direct standardization (see Appendix II for details of the method). This technique enables each year of the survey to be compared to all others for analysis of trends over time. The 1990 Massachusetts population counts which were used to weight the BRFSS data, are shown in the top part of Table 2 and were derived from the "modified" 1990 census data. The modified census data reflect adjustments made to the age-specific counts after correcting for a problem with the classification of race by age.

The "Behavioral Risk Factors and Preventative Health Measures, Massachusetts 1986 - 90" report should be referred to for more detailed information on the methods used to collect and analyze BRFSS data.[2]

Sample Description

In 1991, 1,424 Massachusetts residents participated in the BRFSS. Of these, eight respondents did not provide their ages and have been excluded from this report. For the remaining 1,416 respondents, Table 2 compares the age, sex, and ethnicity characteristics of the respondents with those of the 1990 Massachusetts population.

Overall the survey population closely reflected the entire Massachusetts population in terms of sex-age and ethnicity distributions. However, women ages 25 - 44 years were slightly over-represented in the survey compared to the state's population. Men at the extremes of age, (18 - 24 years and greater than 55 years) were slightly under-represented in the survey. Minority groups were also slightly under-represented. Summary information of all demographic variables weighted to the Massachusetts 1990 population are provided in Appendix III.

Reliable estimates of risk factor prevalence by race/ethnicity could not be calculated for 1991 due to the small number of minority interviews conducted. Risk factor prevalence estimates by ethnicity have been previously reported using combined survey data from 1986-1990.[2] In 1992, an oversampling of Blacks and Hispanics was conducted which will allow future disaggregation of risk factor data by race/ethnicity.

Table 2

Comparison of the 1991 BRFSS Sample and the Massachusetts 1990 Population Estimates (18 years and older) By Age, Sex and Ethnicity

Characteristic	1991 BRFSS Respondents		1990 Massachusetts Population*	
	Number	Percent	Number	Percent
Men				
18 - 24 years	77	5.4	355,266	7.6
25 - 34 years	183	12.9	545,992	11.7
35 - 44 years	141	10.0	448,597	9.6
45 - 55 years	85	6.0	289,215	6.2
56 - 64 years	64	4.5	241,784	5.2
65 + years	70	4.9	310,375	6.7
Women				
18 - 24 years	102	7.2	361,924	7.8
25 - 34 years	203	14.3	552,658	11.9
35 - 44 years	173	12.2	465,949	10.0
45 - 54 years	92	6.5	306,719	6.6
55 - 64 years	82	5.8	272,295	5.9
65 + years	144	10.2	504,630	10.8
Ethnicity+				
White non-Hispanic	1,303	92.0	4,175,228	89.7
Black non-Hispanic	50	3.5	192,920	4.1
Hispanic	35	2.5	179,502	3.8
Other	27	1.9	107,754	2.3
Total	1,416	100.0	4,655,404	100.0

* Source: U.S. Bureau of the Census, 1990 Modified Age, Race, and Sex (MARS) file

+ One respondent with unknown ethnicity

Data Presentation

The study results are presented in three separate sections. The first section presents data on risk factors relating to seat belt use, cigarette smoking, alcohol consumption, physical inactivity, overweight, and fruit and vegetable consumption. In the second section, the utilization of preventive clinical services such as screening services for detection of high blood cholesterol and hypertension are presented. This section also includes prevalence data on reported health insurance coverage which were ascertained for the first time in 1991. The third section addresses solely women's health issues, with data on the prevalence of breast and cervical cancer screening.

For each risk/health factor a brief statement on the health impact of the risk factor is presented, followed by a definition of the variables used in this report to ascertain the prevalence (the proportion of respondents who reported engaging in the risk behavior). As recommended by the CDC, prevalence estimates are reported as whole percents unless the denominator is greater than 500. The 1991 national prevalence, derived from the median prevalence among the 48 states and territories that participated in the BRFSS in 1991, is also provided. This differs from the 'national prevalence' reported in a previous publication, "Behavioral Risk Factors and Preventive Health Measures, Massachusetts 1986-90" which reported the national baseline prevalences from the "Healthy People 2000" report. Where available, Year 2000 Objectives for the general population as well as for special high risk populations are presented. Unless otherwise stated, the Year 2000 Objectives were obtained from the "Healthy People 2000" report and have not been further referenced.

In general, four to six figures are presented for each risk factor in relation to selected demographic features. In most figures the actual weighted prevalence estimates are provided below each figure and the symbols "M" and "W" are used to denote men and women respectively. Demographic characteristics should not be interpreted as causes of risk factors or behaviors, but as easily defined groups to which appropriate health promotion activities may be targeted.

1. Prevalence of a risk factor by year - The first figure shows the change in the prevalence for men and women from 1986 to 1991. Since data were adjusted by age and sex to the population of Massachusetts in 1990, changes over time in a risk factor are not biased by yearly changes in the sex and age distributions of the state's population. To determine the statistical significance of prevalence changes over time, annual prevalence estimates with 95% confidence intervals are provided in Appendix IV for selected risk factors.

2. Prevalence of a risk factor by age - Respondents were asked how old they were on their last birthday and six age categories (18-24 years; 25-34 years; 35-44 years; 45-54 years; 55-64 years and 65 years or older) were subsequently developed from these responses. Age categories were combined when the number of respondents with a risk factor for a particular age group was very small (typically less than 5).

3. Prevalence of the risk factor by educational attainment - Respondents were asked to report the highest grade or year of schooling they had completed. Responses were coded during the interview into 8 categories: eighth grade or less, some high school; high school graduate or GED certificate; some technical school; technical school graduate; some college; college graduate; or post-graduate or professional training. For this report responses were reclassified into four categories: did not complete high school; completed high school (which included some technical school or technical school graduate); attended college (which included college graduates); and post-graduate or professional training.

4. Prevalence of the risk factor by income level - Respondents were asked which of the following categories best described their annual household income from all sources: below $10,000; $10,000-$14,999; $15,000-$19,999; $20,000-$24,999; $25,000-$34,999; $35,000-$50,000; and over $50,000. These were combined into the following categories: below $15,000; $15,000-$34,999; and $35,000 or more.

When appropriate, additional figures were included to show how the risk factor was associated with other variables.

General Cautionary Statements

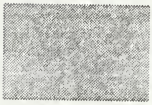
Variable Interactions: Many of the demographic variables may be associated with each other, for example, young age with lower and middle income levels. Such potential associations should be taken into consideration when examining these data. It is beyond the scope of this report to completely adjust for all of these inter-relationships, and the reader should be mindful of potential confounding and interactions between variables when interpreting these data.

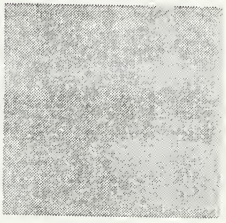
Sample Size: Prevalence estimates for some subgroups are based on small sample sizes. In cases where there were fewer than 50 respondents in a subgroup, or fewer than 5 respondents with a risk factor being analyzed, the prevalence estimates are highly unstable, and inferences from such data should be made cautiously. An asterisk on the appropriate subgroup bar in the figure indicates when small numbers exist. Generally, subgroups with small numbers have been combined to produce more meaningful and stable estimates.

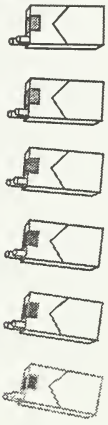
Self-Reported Data: The BRFSS relies on self-reported behaviors, without confirmation by medical records or observation of actual behaviors. Prevalence estimates may be biased if respondents under-report selected risk behaviors or over-report positive health behaviors. A recent study suggests there may be significant over-reporting of seat belt use.[4] Also, the wording of sensitive questions, such as driving after having "had perhaps too much too drink" can have a different meaning to different individuals. The importance and magnitude of self-reporting biases as they vary by health behavior or between subgroups has not been addressed in this report. Prevalence estimates obtained using the BRFSS methodology should be compared with caution to estimates of prevalence for risk factors obtained by personal interview, medical examination, medical chart review, or non-population based studies.

Telephone Survey: Data collected by a random digit dial telephone methodology may procure an over- or under-representation of certain subgroups of the population as a result of the sampling method employed and/or the participation rate. The sample population, therefore, may not truly represent the actual population. In order to correct for some of this bias, the data are weighted to the 1990 Massachusetts census counts by age and sex.

Risk Factors







Regular Seat Belt Use

Motor vehicle crashes are the leading cause of premature death of Massachusetts residents between the ages 15 to 24 years.[5] Regular use of lap and shoulder belts are at least 45% effective in preventing fatalities and serious injuries, as estimated by the National Highway Traffic Safety Administration.[6]

Definition:

Regular Seat Belt Use - Always or almost always using a seat belt when driving or riding in a car.

Usage over time:

Self-reported use of always or nearly always wearing a seat belt was highest in 1986 with 66% of the population reporting regular use. Use of seat belts declined to 50% in 1988, coinciding with the repeal of the mandatory seat belt legislation. After 1988, the prevalence of use for women steadily rose until 1990 where it has remained constant at 61%. In contrast, the prevalence of seat belt use in men continued to decline until 1991, at which time the rate rose to 52%. (See Appendix IV for CDC's estimates of 95% confidence intervals for the annual prevalences).

Who's at risk in 1991:

- At all ages, men used seat belts less regularly than women with an overall prevalence of 52% for men and 61% for women.
- Only 39% of young men (aged 18-24) regularly wore seat belts.
- Young women (aged 18-24) were 20% less likely and women aged 45+ were nearly 15% less likely to use seat belts regularly than women aged 25-44 years.
- Residents with a high school education or less wore seat belts less regularly (35% for men and 52% for women) than those with higher education.
- Less than half of lower and middle income men (43%) and lower income women (48%) used seat belts on a regular basis.

Year 2000 Objective:

	Year 2000 target prev.	Mass. 1991 prevalence	BRFSS 1991 National prev.
• Whole population	85%*	56%	76%

* Year 2000 prevalence data are not directly comparable as they are computed from direct observation of traffic and include use by infants and children.

Figure 1

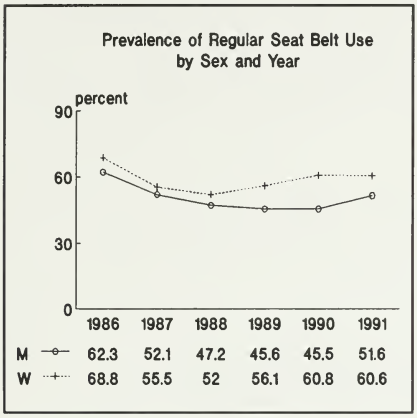


Figure 2

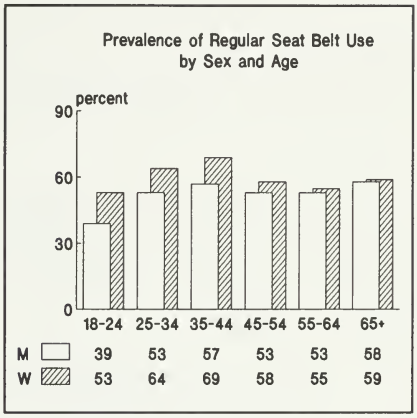


Figure 3

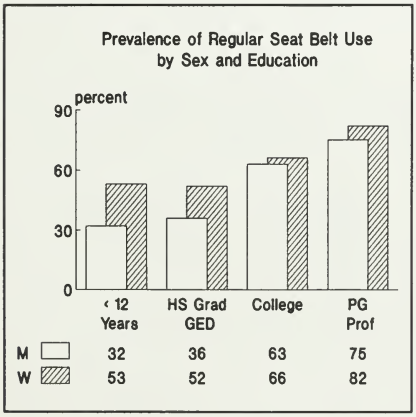
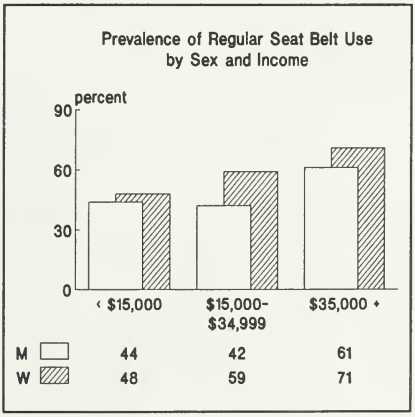


Figure 4



Source: Massachusetts Department of Public Health, Chronic Disease Surveillance Program, BRFSS, 1991.

Current Cigarette Smoking

Cigarette smoking is the leading cause of preventable death and disease in Massachusetts, responsible for one fifth of all deaths to residents aged 35 and over in 1988.[7] Smoking is a risk factor for diseases of the heart and circulatory system as well as for numerous cancers, especially lung cancer. In addition, women who smoke during pregnancy are at increased risk of having low birthweight babies, miscarriages, premature births and prenatal deaths.

Definition:

Current Smoker - Smoked at least 100 cigarettes in lifetime and is regularly smoking now.

Usage over time:

In 1991 the prevalence of current smoking was 23% for men and women alike. This represents a 13% decline in the smoking prevalence from 27% in 1986 to 23% in 1991; however, this drop was most dramatic from 1988 to 1989. (See Appendix IV for CDC's estimates of 95% confidence intervals for the annual prevalences).

Who's at risk in 1991:

- 29% of young women (aged 18 - 34) and 27% of young men were current smokers. Over a quarter (26%) of women of reproductive age (ages 18 - 44) were current smokers.
- Approximately a third of respondents with a high school education or less were smokers (35% for men and 30% for women).
- Nearly 30% of low and middle income respondents were current smokers.

At what age did smokers start smoking?

- Among adults who smoked at least 100 cigarettes in their lifetime, in 1991 the median age for first starting to smoke was 17 years, with a range of 7 to 56 years, with 25% of smokers starting at age 15 or less. (data not shown)

Year 2000 Objectives:

	Year 2000 target prev.	Mass. 1991 prevalence	BRFSS 1991 National prev.
• Whole population	15%+	23%*	23%*
• Adults with high school education or less	20%+	32%*	not available
• Women aged 18-44 yrs	12%	26%	not available
• Young adults aged 20-24 years	15%	25%	not available

* aged 18 years and older
\+ aged 20 years and older

Figure 5

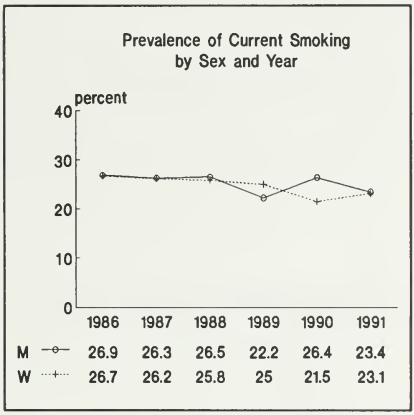


Figure 6

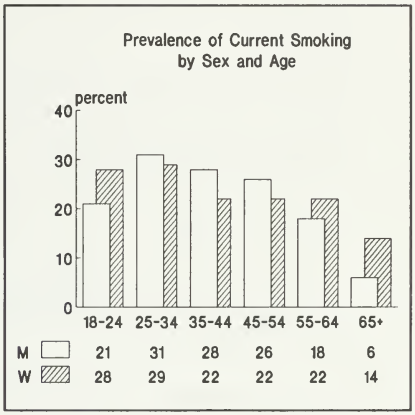


Figure 7

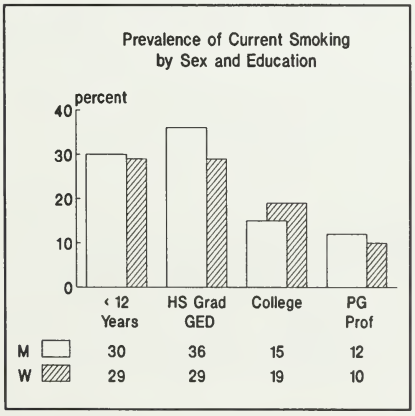
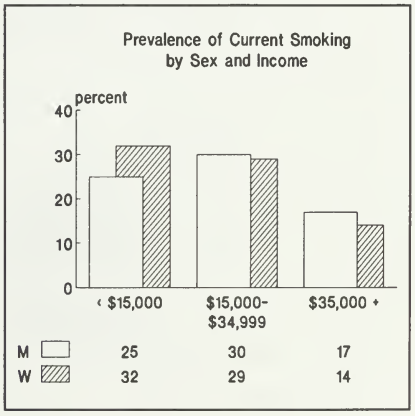


Figure 8



Source: Massachusetts Department of Public Health, Chronic Disease Surveillance Program, BRFSS, 1991.

Former and Relapsed Smoking

Benefits to quitting smoking include reduction in risk for coronary heart disease and possibly for lung cancer risks, particularly when smoking is ceased at younger ages.[8] The success of smoking cessation programs can be measured by monitoring changes in the prevalence of former smoking within the population over time.

Definitions:

Former Smoker - Smoked at least 100 cigarettes in lifetime, but is not currently smoking.

Relapsed Smoker - Smoked at least 100 cigarettes in lifetime, is currently smoking and quit smoking for 1 day or longer in the past year.

Changes over time:

The prevalence of former smoking increased in women from 47% in 1987 to 57% in 1990, which represented a 12% gain and brought the prevalence closer to that of the prevalence among men in 1990 and 1991. Overall, the male prevalence of former smoking has remained fairly constant.

Who's successfully quit in 1991:

- Among residents who ever smoked, 58% reported that they were currently former smokers (60% for men, 56% for women).
- The prevalence of former smoking increased with age among men with 92% of ever smokers having quit by the age of 65. The female prevalence of former smoking also increased with age, but reached a plateau of 68% among women 55 years and older.
- Residents with advanced education and higher incomes were more likely to have quit smoking.

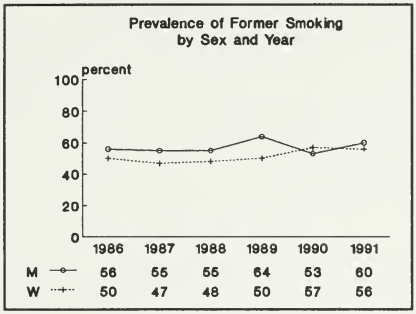
Who's tried unsuccessfully to quit in 1991:

- 54% of all current smokers had relapsed after quitting smoking for at least 1 day within the past year. The relapse prevalences are similar for men and women.
- 62% of young adult men (aged 18 - 34) relapsed after having tried to quit smoking.
- Over 50% of all women had relapsed after quitting smoking for at least 1 day.

Year 2000 Objective:

	Year 2000 target prev.	Mass. 1991 prevalence	BRFSS 1991 National prev.
• Whole population - quit for at least 1 day	50%	54%	not available

Figure 9



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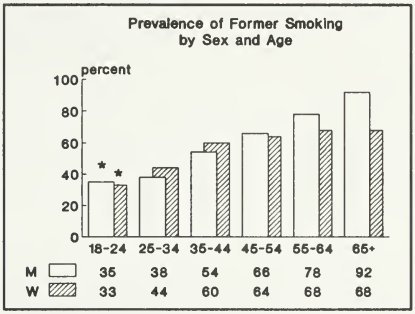


Figure 11

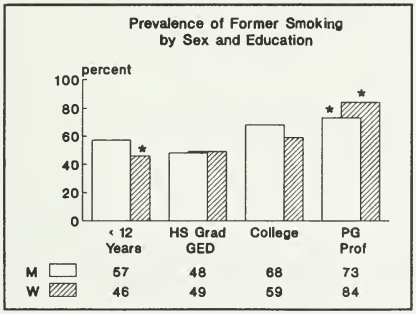


Figure 12

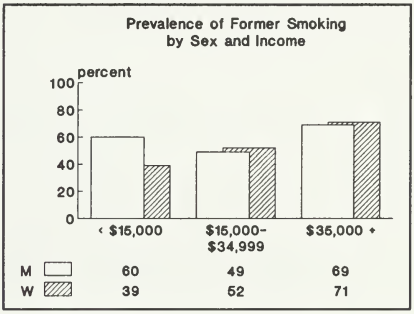


Figure 13

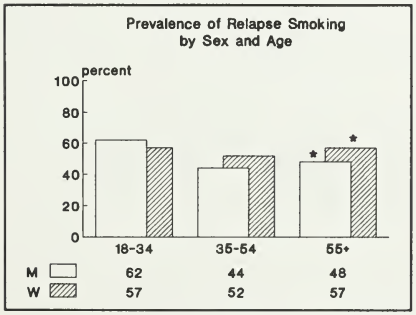
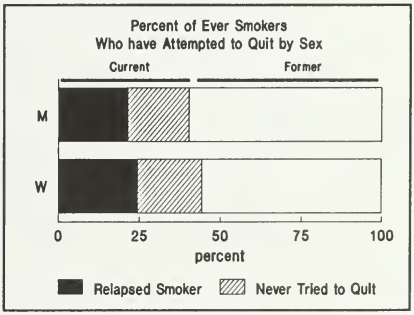


Figure 14



* Estimated prevalence for this subgroup based on sparse data (fewer then 50 respondents overall and/or 5 respondents with the risk behavior).

Source: Massachusetts Department of Public Health, Chronic Disease Surveillance Program, BRFSS, 1991.

Binge Drinking

Adverse medical and social consequences can arise from single episodes of excessive drinking. The pattern of heavy drinking on single occasions or within a short period of time is often described as "alcohol abuse" and can result in fatal and non-fatal injuries.

Definition:

> **Binge drinking** - Having had 5 or more drinks on a single occasion at least once within the past month.

Changes over time:

The prevalence of self-reported binge drinking has essentially remained unchanged since 1986. Binge drinking rates among men have remained 2 to 3 times that of women. In 1991, the overall prevalence was 22% with more men (32%) than women (12%) reporting binge drinking within the past month. (See Appendix IV for CDC's estimates of 95% confidence intervals for the annual prevalences).

Who's at risk in 1991:

- 26% of young adult women (aged 18-24) reported binge drinking within the previous month. Binge drinking decreased with increasing age among women.
- Nearly half (49%) of men aged 25-34 and over a third of men aged 18-24 and aged 35-54 reported binge drinking.
- Men with a high school education or a college education were more likely (38%) to engage in binge drinking compared to men with less education (15%) or graduate education (17%).
- The prevalence of binge drinking among mid- and upper- income men was nearly double the prevalence for lower- income men (35% and 18%, respectively).
- There was little disparity in the prevalence of binge drinking among women by education or income level.

Year 2000 Objective:

	Year 2000 target prev.	Mass. 1991 prevalence	BRFSS 1991 National prev.
• Whole population	*	22%	14%

* No specific objectives have been set on alcohol consumption. Rather, objectives call for reductions in alcohol-related mortality, primarily traffic fatalities and cirrhosis.

Figure 15

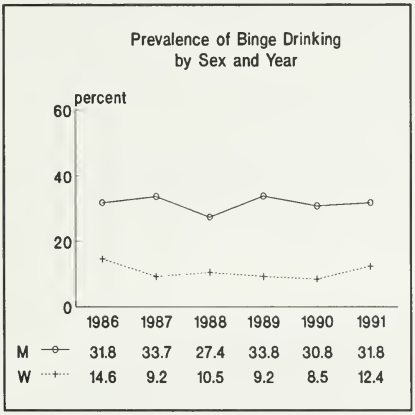


Figure 16

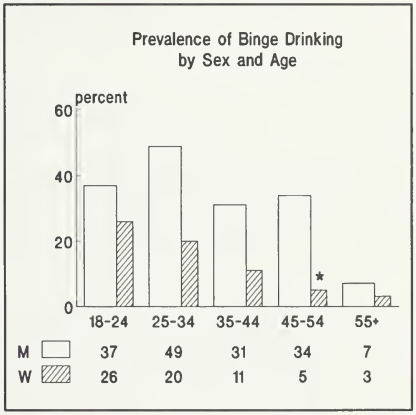


Figure 17

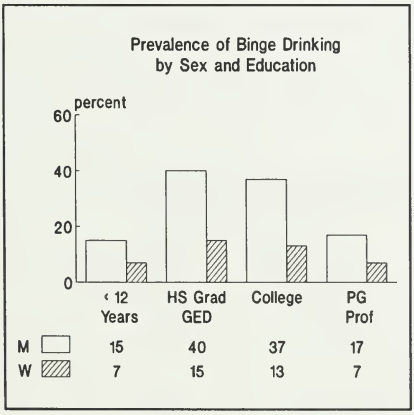
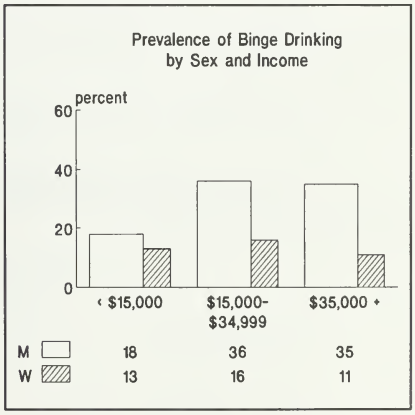


Figure 18



* Estimated prevalence for this subgroup based on sparse data (fewer then 50 respondents overall and/or 5 respondents with the risk behavior).

Source: Massachusetts Department of Public Health, Chronic Disease Surveillance Program, BRFSS, 1991.

Chronic Drinking and Driving after Drinking

Based on self-reported behaviors, chronic drinking and driving after drinking disproportionately occur more among men in Massachusetts than women. Chronic patterns of heavy drinking are frequently described as "alcohol dependence" and can lead to serious adverse health and social outcomes. Driving after drinking remains a significant problem in the U.S., with 50 - 55% of all fatal traffic accidents involving a drinking driver.[9]

Definitions:

Chronic Drinking - Having had 60 or more alcoholic drinks within the past month.

Driving After Drinking - Having driven at least once after having had "perhaps too much to drink" within the past month.

Changes over time:

Prevalence estimates of self-reported chronic drinking and driving after drinking were very low (less than 5%) among women and have remained relatively unchanged over the past 6 years. In contrast, prevalence estimates of chronic drinking and driving after drinking were much higher among men, but have been decreasing steadily with a 48% relative drop for both risk factors from 18.4% in 1986 to 9.6% in 1991 in the prevalence of chronic drinking and 7.9% in 1986 to 4.1% in 1991 in driving after drinking. (See Appendix IV for CDC's estimates of 95% confidence intervals for the annual prevalences).

Who's at risk in 1991:

- Young men (aged 18-34) were more likely to engage in chronic drinking (13%) and driving after drinking (7%) than older men.
- Men with at least a high school education were more likely (11%) to be chronic drinkers then men with less education.
- Male residents with some college education were more likely (6%) to have driven after having had too much to drink than men with other levels of education.

Year 2000 Objectives:

	Year 2000 target prev.	Mass. 1991 prevalence	BRFSS 1991 National prev.
• Whole population - chronic drinking	*	5.6%	3.4%
• Whole population - driving after drinking	*	2.8%	2.5%

* No specific objectives have been set on alcohol consumption. Rather, objectives call for reductions in alcohol-related mortality, primarily traffic fatalities and cirrhosis.

Figure 19

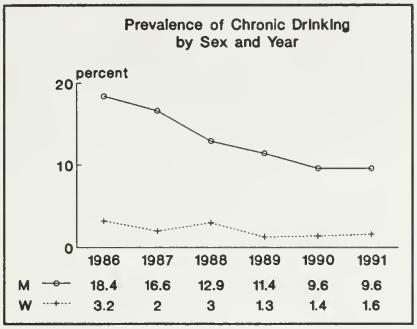


Figure 20

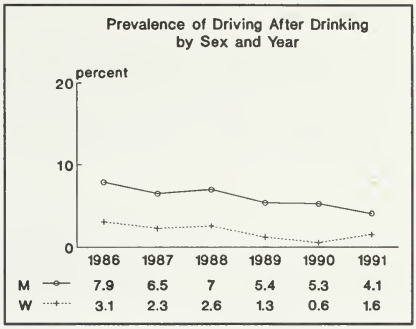


Figure 21

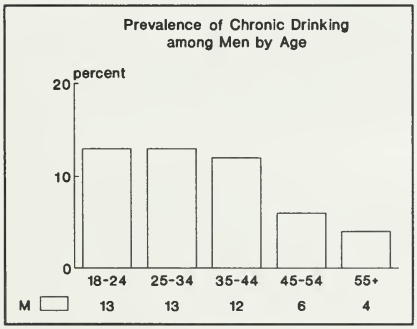


Figure 22

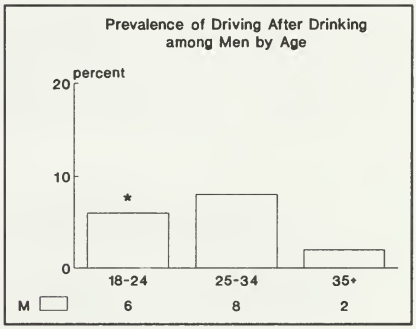


Figure 23

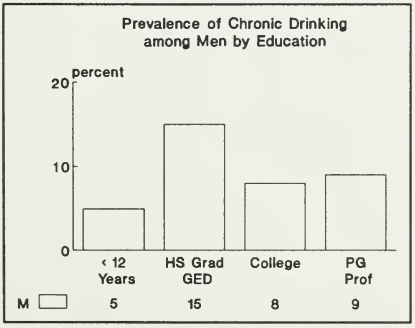
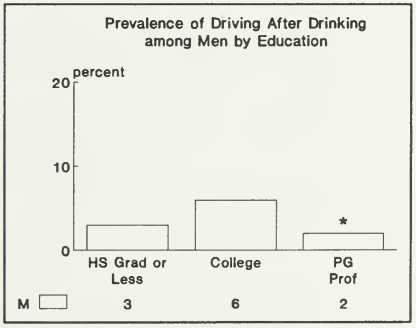


Figure 24



* Estimated prevalence for this subgroup based on sparse data (fewer then 50 respondents overall and/or 5 respondents with the risk behavior).

Source: Massachusetts Department of Public Health, Chronic Disease Surveillance Program, BRFSS, 1991.

No Leisure Time Physical Activity

Regular physical exercise can help prevent coronary heart disease, hypertension, non insulin-dependent diabetes, osteoporosis and obesity. It has also been show to be beneficial in the treatment of mental health problems such as depression. In addition to younger, healthier adults, individuals with many chronic medical conditions and the elderly can benefit from a supervised exercise program. Given the high percentage of the U.S. population that engages in no leisure time physical activity, prescribing exercise is considered a prudent means of improving individual and general public health.[10]

Definition:

> **No Leisure Time Physical Activity** - Reported no leisure time physical activity (e.g., running, golf, gardening, walking for exercise) within the past month.

Changes over time:

Nearly a quarter (24%) of all Massachusetts residents did not engage in any leisure time physical activity in 1991. Overall, slightly more women than men reported no leisure time exercise. Among men prevalence estimates have remained relatively unchanged since 1986. After a slight rise between 1986 and 1988, the proportion of women who engaged in no leisure time physical activity had returned to the 1986 level by 1991. (See Appendix IV for CDC's estimates of 95% confidence intervals for the annual prevalences).

Who's at risk in 1991:

- Older adults (particularly men aged 55+ and women aged 65+) were more likely to not engage in any leisure time physical activity.
- 50% of men and over 40% of women with less than a high school education did not engage in leisure time physical exercise.
- The proportion of women who did not engage in leisure time exercise increased with decreasing levels of educational attainment.
- Over a third (34%) of Massachusetts residents with the lowest level of household income reported having no leisure time physical activity.

Year 2000 Objective:

	Year 2000 target prev.	Mass. 1991 prevalence	BRFSS 1991 National prev.
• Whole population	15%*	24%	28%
• Elderly, aged 65+	22%	40%	not available
• Lower-income (< $20,000)	17%*	34%	not available

* Includes individuals aged 6 and older.

Figure 25

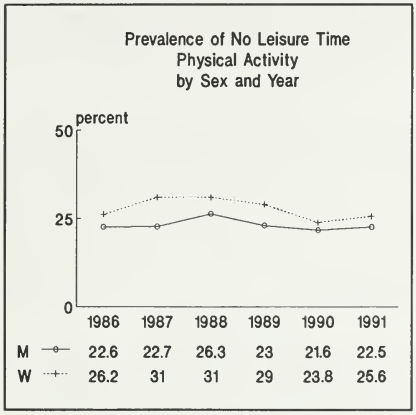


Figure 26

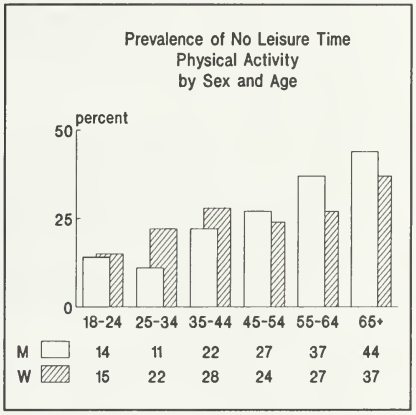


Figure 27

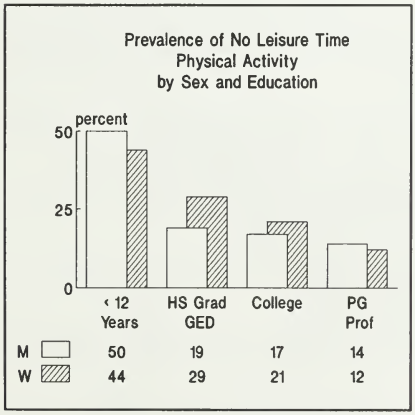
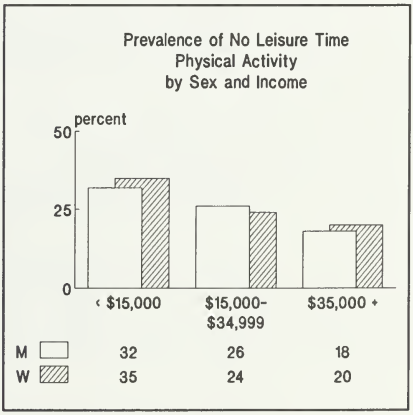


Figure 28



Source: Massachusetts Department of Public Health, Chronic Disease Surveillance Program, BRFSS, 1991.

Overweight - aged 20 +

Obesity (excess body fatness) is associated with increased risk for hypertension, non-insulin dependent diabetes and selected cancers.[11] Prevention of obesity and weight reduction among the overweight is a component of most chronic disease prevention programs. Overweight, a term describing excess body weight for height, is often measured by Body Mass Index (BMI). The BMI values used below to categorize individuals as overweight are nearly equivalent to 120% of ideal weight based on the 1959 Metropolitan Height/Weight tables for ideal weight for height.

Definitions:

Overweight - Body Mass Index (computed from self-reported height and weight) of at least 27.8 kg/m^2 (men) or 27.3 kg/m^2 (women) among residents aged 20+.

Trying to Lose Weight - Reported trying to lose weight now among those aged 20+.

Weight Control Practices - Reported "eating fewer calories" and/or "increasing physical activity" to lose weight among those trying to lose weight now and aged 20+.

Changes over time:
Based on self-reported height and weight measures, the prevalence of overweight residents has remained relatively unchanged over the past 6 years among women and has shown a slight decrease among men since 1988. Overall, men have been consistently more overweight than women but this disparity was least pronounced in 1991. (See Appendix IV for CDC's estimates of 95% confidence intervals for the annual prevalences).

Who's at risk in 1991:

- Middle aged men and women (aged 45-54) were most likely to be overweight. The prevalence of overweight adults increased steadily with advancing age until middle age, after which it decreased with older ages.
- Between the ages of 25 and 54, men were more likely to be overweight than women.
- Nearly a third of all men with less than a high school education were overweight compared to a fifth of men with more education. Less educated women were more likely to be overweight than those with a college education or greater.
- Women with the lowest level of household income were more likely overweight.

Who's trying to lose weight in 1991 and by what methods:

- Nearly 75% of overweight women and 60% of overweight men reported currently trying to lose weight.
- Among those overweight and trying to lose weight over half (52%) relied on dieting alone to lose weight and 40% combined diet and physical exercise.

Year 2000 Objective:	**Year 2000 target prev.**	**Mass. 1991 prevalence**	**BRFSS 1991 National prev.**
• Overweight adults - aged 20+	20%	21%	23%

Figure 29

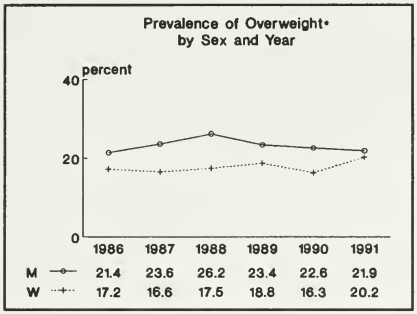


Figure 30

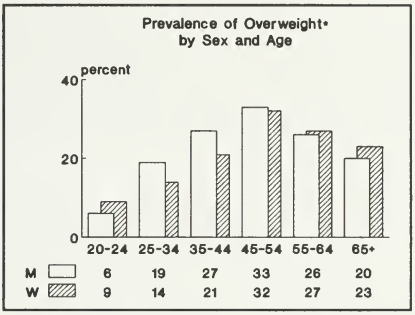


Figure 31

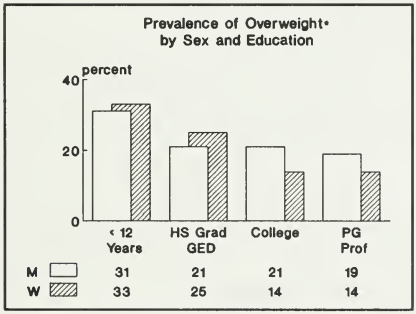


Figure 32

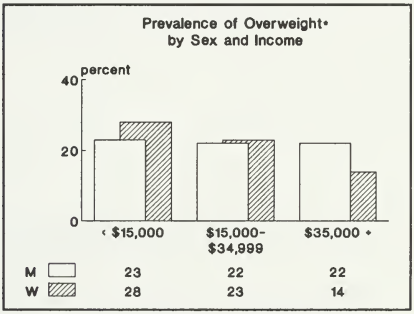


Figure 33

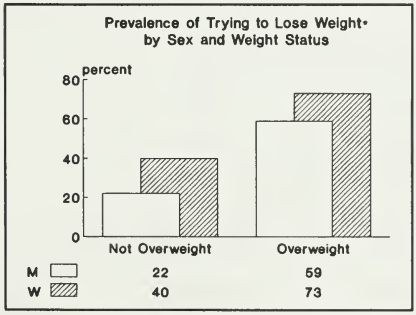
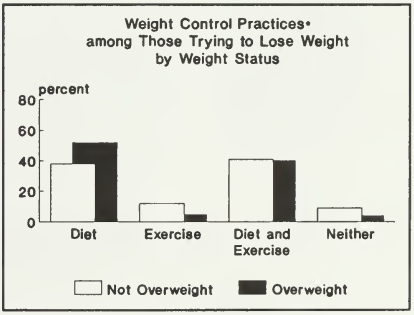


Figure 34



* Among adults aged 20 and older.

Source: Massachusetts Department of Public Health, Chronic Disease Surveillance Program, BRFSS, 1991.

Fruit & Vegetable Consumption

Fruits and vegetables are a good source of vitamins and are naturally high in fiber and low in fat. Nutritionists recommend five servings of fruits and vegetables each day as part of a healthy diet. The BRFSS fruit and vegetable questions were designed to approximately estimate the Year 2000 objective to increase fruit and vegetable consumption of adults to 5 or more daily servings. The BRFSS is not precise because the exact number of servings and the portion sizes were not obtained. Despite these limitations, mean daily intakes as measured by the BRFSS were similar to those measured by the multiple food record/recalls in a validation study.[12]

Definition:

Less Than 5 Servings per Day - Frequency based on answers to a series of 6 question which asked "How often do you eat (name of fruit or vegetable)?"

Changes over time:

Fruit and vegetable questions were asked only in 1991. Of the adults surveyed in the Commonwealth, 76% reported consuming less than 5 fruits or vegetables per day. With the exception of men under age 25, more men than women reported consuming less than 5 servings per day.

Who's at risk in 1991:

- 84% of adult women under age 25 reported not eating 5 servings per day.
- 83% of men between the ages of 25 and 54 did not consume 5 servings daily.
- 81% of men and 74% of women with a college education or less consumed less than 5 servings of fruits and vegetables per day.
- Men with the lowest level of household income were most likely to report consuming less than 5 daily servings of fruits and vegetables.

How often were fruits or vegetables consumed in 1991:

- The frequency of daily consumption of fruits and vegetables among all Massachusetts adults was 2.6% for less than 1 serving, 31.8% for 1-2 servings, 41.6% for 3-4 servings and 24.0% for 5 or more servings.
- The mean number of daily servings of fruits and vegetables was 3.3 for men and 3.6 for women.

Year 2000 Objective:

	Year 2000 target prev.	Mass. 1991 prevalence	BRFSS 1991 National prev.
• Whole population - consumption of 5+ daily servings	*	24%	not available

* No target prevalence specified. Objective 2.6 calls for increasing complex carbohydrate and fiber-containing foods in the diets of adults to 5 or more daily servings for vegetables and fruits.

Figure 35

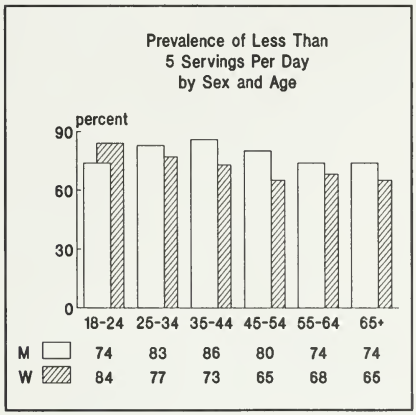


Figure 36

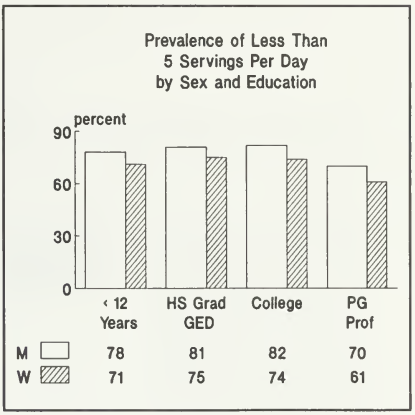


Figure 37

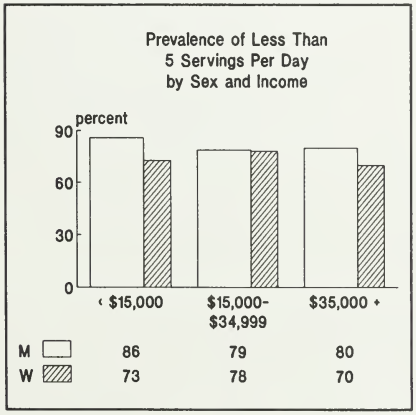
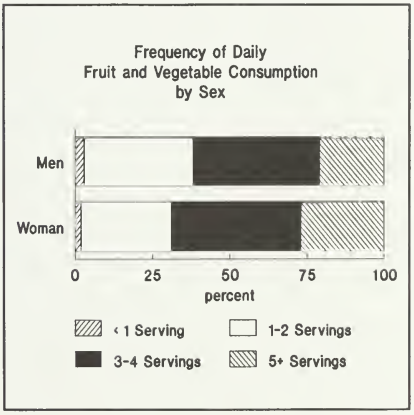
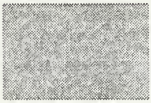


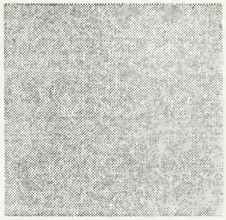
Figure 38

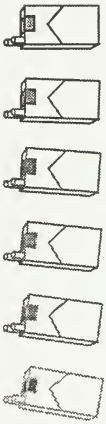


Source: Massachusetts Department of Public Health, Chronic Disease Surveillance Program, BRFSS, 1991.

Screening







Unchecked Cholesterol & High Cholesterol

Reducing high cholesterol levels is an important component of Massachusetts' prevention program efforts to lower the risk of heart disease. It is estimated that each 1% reduction in blood cholesterol level results in a 2% reduction in the risk for heart disease.[13] As a first step, individuals at risk for heart disease must be screened for elevated blood cholesterol levels. One current program, the Massachusetts Cholesterol Challenge, identifies individuals throughout the Commonwealth with elevated cholesterol levels and educates both residents and health care professionals about risk reduction strategies.

Definitions:

Unchecked Cholesterol - Reported not having blood cholesterol checked within the past 5 years.

High Cholesterol - Reported having been told by a doctor or other health professional that blood cholesterol level was high.

Changes over time:

Since 1987 when questions on cholesterol screening were initiated there has been a steady drop in the percent of residents who have not had their blood cholesterol levels checked within the past five years. This reduction has been similar for men and women and represents a 40% relative decline from 56.1% in 1987 to 33.7% in 1991. Relatedly, there was over a doubling in the prevalence of high cholesterol in the Massachusetts from 1987 to 1991, most likely due in part to the increase in detection corresponding to the increase in screening. (See Appendix IV for CDC's estimate of 95% confidence interval for the 1991 prevalence).

Who wasn't screened in 1991:

- Over 60% of young adults (aged 18-24) and over 40% of adults (aged 25-34) had unchecked blood cholesterol levels.
- A fifth of adults 65 years and older had not had their cholesterol levels checked within 5 years.
- Residents with a high school education or less were more likely to have unchecked cholesterol levels than residents with more education.
- Nearly 50% of low- and middle- level income men had unchecked cholesterol levels.

Year 2000 Objective:

	Year 2000 target prev.	Mass. 1991 prevalence	BRFSS 1991 National prev.
• Whole population - cholesterol checked within 5 years	75%	66%	64%

Figure 39

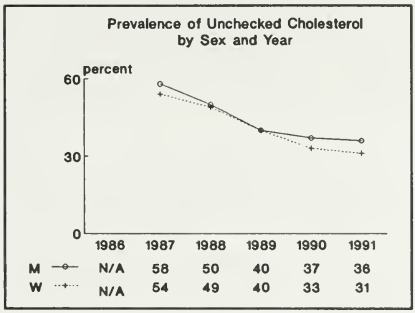


Figure 40

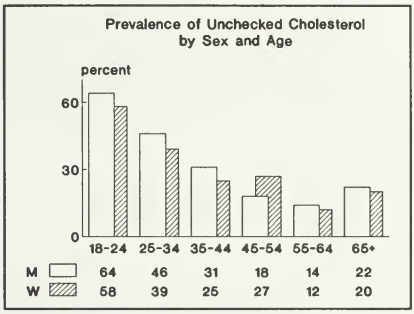


Figure 41

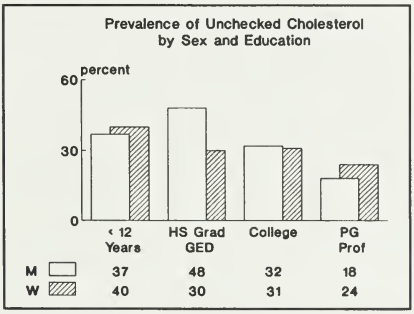


Figure 42

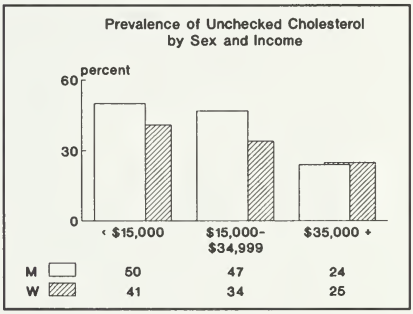
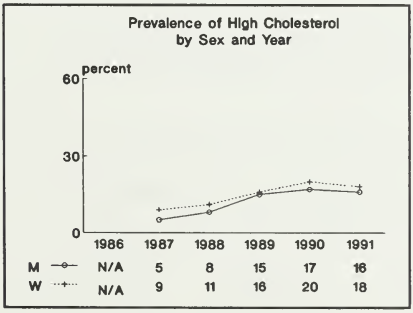


Figure 43



Source: Massachusetts Department of Public Health, Chronic Disease Surveillance Program, BRFSS, 1991.

Unchecked Blood Pressure & High Blood Pressure

High blood pressure (or hypertension) is associated with increased risk for stroke, kidney failure and coronary heart disease. Blood pressure tends to increase with age and can be affected by weight gain, physical inactivity, and to a lesser extent, diet. Blood pressure should be checked periodically, and individuals with high levels (greater than 140/90 mmHg), recorded on more than one occasion, should be referred for treatment which can range from behavioral modification to pharmacological intervention.

Definitions:

Unchecked Blood Pressure - Reported not having blood pressure checked by a doctor, nurse or other health professional within the past 2 years.

High Blood Pressure - Reported having been told by a doctor, nurse or other health professional that blood pressure was high and was either told on more than one occasion that blood pressure was high or currently had prescribed any medicine for high blood pressure.

Changes over time:
Questions regarding hypertension history have been continually asked since 1985, but questions on the frequency of blood pressure screening were administered in 1988 and 1991 only. In 1991, the proportion of residents who had not had their blood pressure checked within the past 2 years was 5% and nearly identical to the 1988 prevalence of 6%. For both years, men were more likely to have been unchecked for hypertension than women, but there was a 28% reduction in the prevalence among men from 8.9% in 1988 to 6.4% in 1991. The prevalence of self-reported high blood pressure also decreased with a 10% relative drop from 19% in 1986 to 15% in 1991. This pattern of decline was very similar for men and women; however, women were slightly more likely to have reported being told they had high blood pressure. (See Appendix IV for CDC's estimates of 95% confidence intervals for the annual prevalences).

Who wasn't screened in 1991:

- Nearly 10% of men under 45 had unchecked blood pressures.

Who reported high blood pressure in 1991:

- Over a quarter of middle-aged adults (aged 45-64) and men aged 65 and older reported having high blood pressure. Among women 65 years and older, 41% reported having high blood pressure.
- 33% of women with less than a high school education reported high blood pressure.
- Nearly a fifth (19%) of women with household incomes less than $35,000 reported high blood pressure.

Year 2000 Objective:

	Year 2000 target prev.	Mass. 1991 prevalence	BRFSS 1991 National prev.
• Whole population - blood pressure checked within 2 years	90%*	95%	94%

* Prevalence includes adults who have had blood pressure checked within 2 years AND can state whether blood pressure was normal or high.

Figure 44

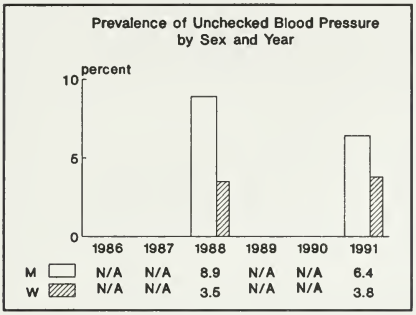


Figure 45

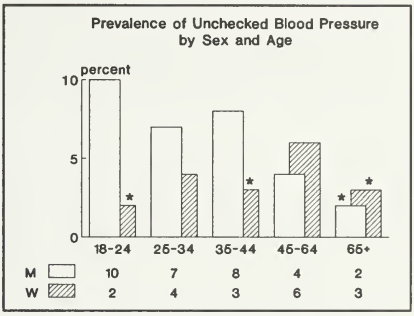


Figure 46

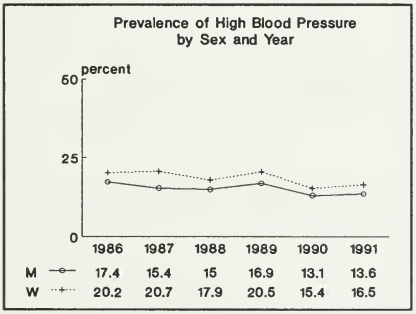


Figure 47

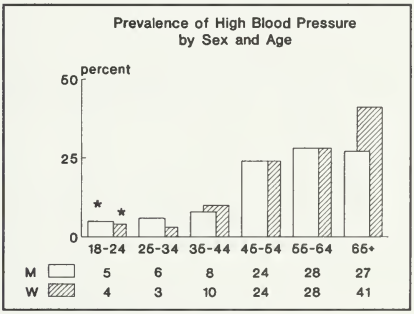


Figure 48

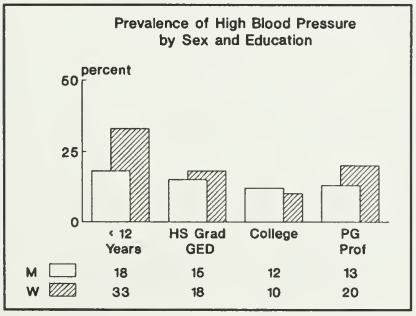
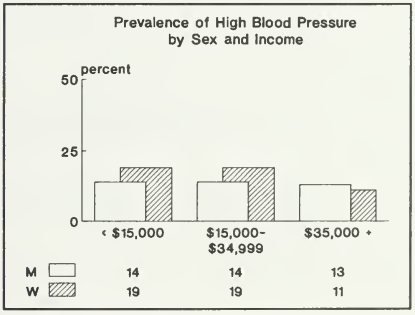


Figure 49



* Estimated prevalence for this subgroup based on sparse data (fewer then 50 respondents overall and/or 5 respondents with the risk behavior).

Source: Massachusetts Department of Public Health, Chronic Disease Surveillance Program, BRFSS, 1991.

Medically Uninsured

An important Year 2000 objective is to "improve financing and delivery of clinical preventive services so that virtually no American has a financial barrier to receiving, at a minimum, the screening, counseling, and immunization services recommended by the U.S. Preventative Services Task Force."[14] Individuals without medical insurance and even some individuals with insurance may not receive health care due to the cost of care. In addition, the existence of insurance coverage does not guarantee adequate preventive health care.

Definitions:

Medically Uninsured - Reported not having any kind of health care plan (including government plans).

Not Seeking Necessary Care Due to Cost - Responded affirmatively to "Was there a time during the last 12 months when you needed to see a doctor, but could not due to cost?"

Well Visits Covered by Insurance - Among those with any kind of health care plan, answered the question "When you are not sick, does your health care plan cover all, most, some or none or your checkups or other preventative services?"

Changes over time:

Questions on medical insurance coverage were initiated in 1991. (See Appendix IV for CDC's estimate of 95% confidence interval for the 1991 prevalence).

Who's at risk in 1991:

- 22% of Massachusetts residents aged 18-24 reported having no health insurance.
- Young men (under age 35) were more likely to be uninsured than young women.
- Over 15% of women with less than a high school education and almost 20% of men with a high school education or less did not have any kind of health insurance.
- Residents with the lowest level of household income were more likely to be uninsured (25% for men and 16% for women).

Who couldn't seek care due to cost:

- 34% of uninsured residents felt unable to seek necessary care due to medical costs (41% for women and 29% for men).
- Even among insured residents, 30% reported having have none or only some of their preventive services covered by their health insurance plans.

Year 2000 Objective:

	Year 2000 target prev.	Mass. 1991 insured prev.	BRFSS 1991 Nat. ins. prev.
• Any kind of health plan	95%*	90%	86%

* "Individuals who have a specific source of ongoing primary care for coordination of their preventative and episodic health care." - Obj. #21.3

Figure 50

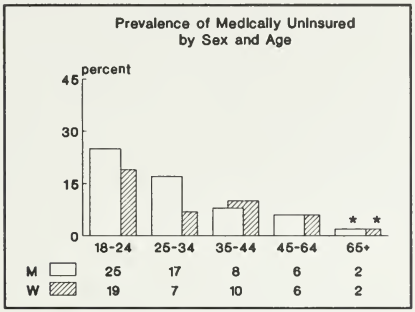


Figure 51

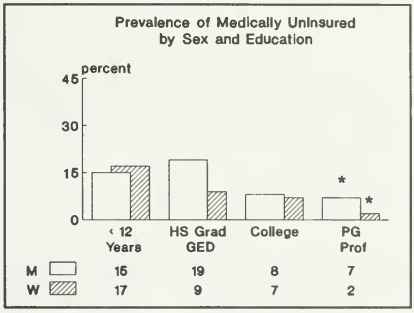


Figure 52

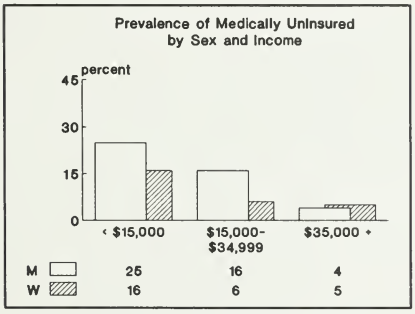


Figure 53

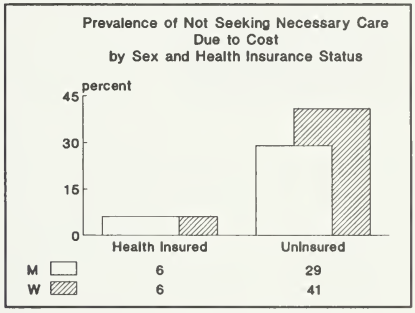
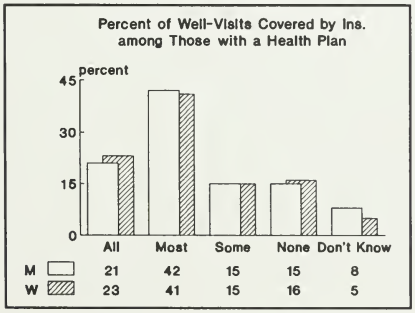


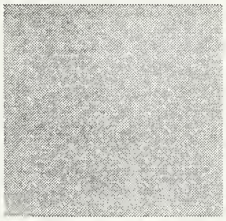
Figure 54

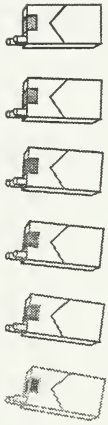


* Estimated prevalence for this subgroup based on sparse data (fewer then 50 respondents overall and/or 5 respondents with the risk behavior).

Source: Massachusetts Department of Public Health, Chronic Disease Surveillance Program, BRFSS, 1991.

Women's Health





Breast Physical Examination and Mammography

Breast cancer is the second leading cause of cancer deaths among Massachusetts women.[5] Since many of the risk factors for breast cancer (advanced age, positive family history, etc.) are unalterable, a primary goal of breast cancer prevention programs is early detection of breast cancer through the use of screening examinations. The American Cancer Society recommends that women aged 20-40 years have a breast physical exam at least every 3 years. Older women should have a breast physical examination annually. In addition, women 40-49 years should have a mammogram at least biannually and women aged 50+, annually.[15]

Definitions:

Breast Physical Examination - Reported ever having a breast physical exam by a doctor or a medical assistant.

Mammography - Reported ever having a mammogram.

Changes over time:

The prevalence of ever having a mammogram among Massachusetts women aged 40 and older increased 55% from 51% in 1987 to 79% in 1991. The largest gain occurred between 1987 and 1989. Prevalence data on breast physical examinations was first collected in 1990 and has remained constant at over 90% of women aged 40 and older. (See Appendix IV for CDC's estimates of 95% confidence intervals for the annual prevalences).

Who wasn't screened in 1991:

- Older women (aged 65+) were slightly more likely to have never had a breast physical exam (11%) or a mammogram (25%) in their lifetime.
- A quarter (26%) of women 40-49 have never had a baseline mammogram.

How often were women screened in 1991:

- 74% of Massachusetts women aged 20+ had a physical breast exam within the past year.
- Among women aged 40+ who have had a mammogram, over half (52%) had one within the past year.
- Women aged 65 and older were more likely to report having never had a mammogram or having one over 2 years ago compared to younger women.

Who didn't receive recommended screening in 1991:

- 50% of women 65 years and older did not receive recommended screening.

Year 2000 Objectives:

	Year 2000 target prev.	Mass. 1991 prevalence	BRFSS 1991 National prev.
• Received Any Breast Physical Exam & Mammogram, Women aged 40+	80%	76%	70%
• Received Breast Physical Exam & Mammogram within 2 years, Women aged 50+	60%	68%	58%

Figure 55

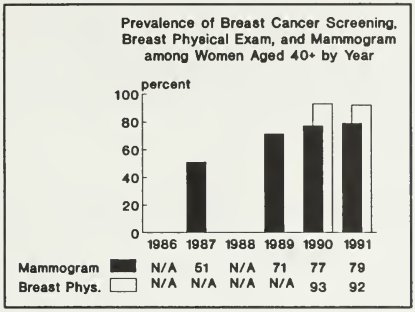

Prevalence of Breast Cancer Screening, Breast Physical Exam, and Mammogram among Women Aged 40+ by Year
percent
100
80
60
40
20
0
1986 1987 1988 1989 1990 1991
Mammogram N/A 51 N/A 71 77 79
Breast Phys. N/A N/A N/A N/A 93 92

Figure 56

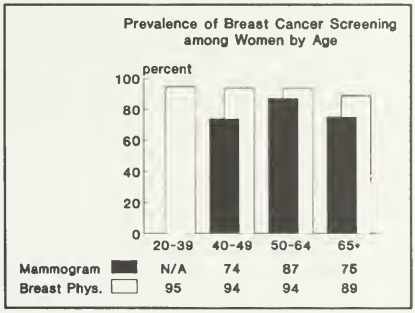


Figure 57

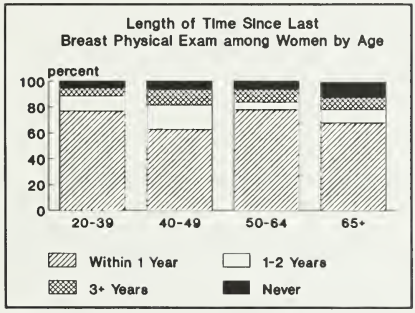


Figure 58

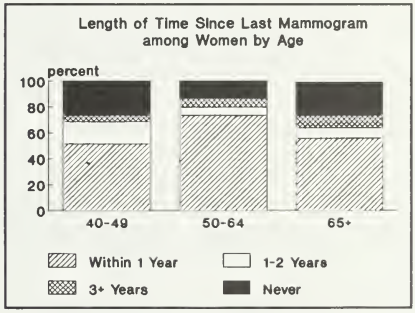
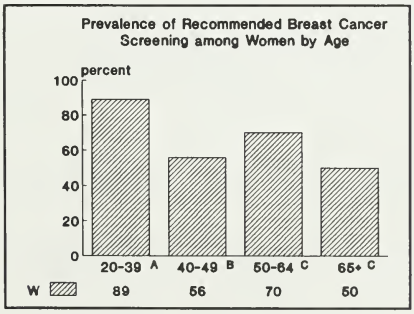


Figure 59



A Breast Exam within 2 Years
B Breast Exam within 1 Year and Mammogram within 2 Years
C Breast Exam within 1 Year and Mammogram within 1 Year

Source: Massachusetts Department of Public Health, Chronic Disease Surveillance Program, BRFSS, 1991.

Indirect evidence indicates that cervical cancer screening at least every 3 years between the ages of 20 to 75 years should decrease the incidence of invasive cervical cancer by 86%.[16] The primary test used to screen for cervical cancer is the Papanicolaou smear (Pap test). The American Cancer Society recommends that women who are 18 years of age or sexually active have a Pap test annually, until 3 successive negative annual examinations; thereafter, the frequency of testing can be reduced at the discretion of their physician.[15]

Definitions:

Any Pap Test - Ever had a pap test among women who had heard of a pap test and had an intact uterine cervix.

Recommended Screening - Had a pap test within the past 3 years among women who had heard of a pap test and had an intact uterine cervix.

Changes over time:
Questions on cervical cancer screening were initiated in 1991. In 1991 the vast majority of women (96%) in Massachusetts had at least 1 Pap test in their lifetime and a high percentage (90%) had received recommended screening. (See Appendix IV for CDC's estimate of 95% confidence interval for the 1991 prevalence).

Who wasn't screened in 1991:

- Women aged 65+ were slightly more likely to have never had a Pap test (10%) compared to younger women.
- 14% of women with less than a high school education never had a Pap test.
- Lower income women were slightly more likely to have never had a Pap test.

Who didn't receive recommended screening in 1991:

- 29% of women 65 years of age and older, and 11% of women aged 40 - 64 reported not receiving a pap test within the past 3 years.
- Women with less than a high school education were less likely (26%) to have been screened within the past 3 years.
- The prevalence of receiving recommended screening increased with increasing income levels. Lower income women were less likely (16%) to have been screened within the past 3 years.

Year 2000 Objectives:

	Year 2000 target prev.	Mass. 1991 prevalence	BRFSS 1991 National prev.
• Women - Received Any Pap Test*	95%	96%+	92%+
• Women - Had Pap Test within last 3 years*	85%	90%+	not available

* Restricted to women who have an intact uterine cervix. + Among women who have heard of a Pap smear test.

Figure 60

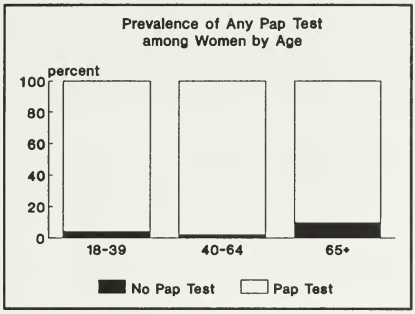


Figure 61

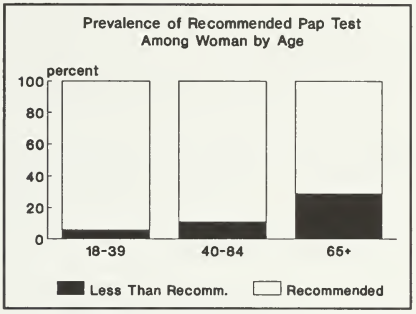


Figure 62

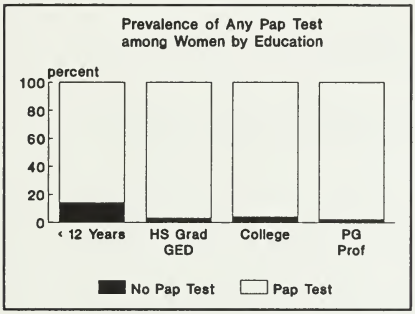


Figure 63

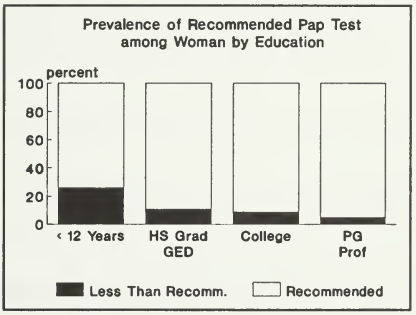


Figure 64

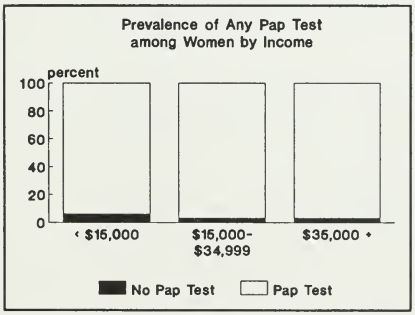
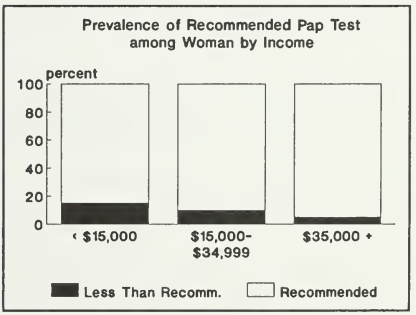


Figure 65



Source: Massachusetts Department of Public Health, Chronic Disease Surveillance Program, BRFSS, 1991.

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Appendix I

1991 Massachusetts Risk Factor Surveillance System Questionnaire

The Massachusetts Department of Public Health is doing a study of the health practices of Massachusetts residents, and has asked the University of Wisconsin Survey Research Laboratory to obtain the data for them. We would like to ask some questions about the things people do which may affect their health.

Introduction: Before we begin, I want to assure you that all of the information you give is completely confidential, and that none of it will be released in any way that would permit identification of you or your household. I don't even need to know your last name. Your participation, of course, is voluntary.

Section A: SEAT BELTS

1. How often do you use seat belts when you drive or ride in a car?
   1. Always
   2. Nearly always
   3. Sometimes
   4. Seldom
   5. Never
   6. Never drive or ride in a car
   8. Don't know/not sure
   9. Refused

Section B: HYPERTENSION These next questions are about hypertension or high blood pressure:

2. About how long has it been since you last had your blood pressure taken by a doctor, nurse, or other health professional?
   1. Within the past 6 months (0 to 6 months ago)
   2. Within the past year (7 to 12 months ago)
   3. Within the past two years (13 to 24 months ago)
   4. Within the past five years (25 to 60 months ago)
   5. More than five years ago (61+ months ago)
   6. Never
   8. Don't know/not sure
   9. Refused

3. Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?
   1. No (skip to question 6)
   2. Yes, by a doctor
   3. Yes, by a nurse
   4. Yes, by other health professional
   8. Don't know/not sure (skip to question 6)
   9. Refused (skip to question 6)

4. Have you been told on more than one occasion that your blood pressure was high, or have you been told this only once?
   1. More than once
   2. Only once
   8. Don't know/not sure
   9. Refused

5. Is any medicine currently prescribed for your high blood pressure?
   1. Yes
   2. No
   8. Don't know/not sure
   9. Refused

Section C: EXERCISE The next few questions are about exercise, recreation or physical activities other then your job related duties.

6. During the past month, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?
   1. Yes
   2. No (skip to question 16)
   8. Don't know/not sure (skip to question 16)
   9. Refused (skip to question 16)

7. What type of physical activity or exercise did you spend the most time doing during the past month?
   1. Activity named, specify :_____
   8. Don't know/not sure (skip to question 11)
   9. Refused/not ascertained (skip to question 11)

Ask question 8 only if answer to question 7 is running, jogging, walking or swimming. All others go to question 9.

8. How far did you usually walk/run/jog/swim?
   1. Miles and tenths

9. How many times per week or per month did you take part in this activity during the past month?
   1. Times per week (specify # per week next question)
   2. Times per month (specify # per month next question)
   8. Don't know/not sure (skip to question 10)
   9. Refused (skip to question 10)

10. And when you took part in this activity, for how many minutes or hours did you usually keep at it?
    1. Hours and minutes

11. Was there another physical activity or exercise that you participated in during the last month?
    1. Yes
    2. No (skip to question 16)
    8. Don't know/not sure (skip to question 16)
    9. Refused (skip to question 16)

12. What other type of physical activity gave you the next most exercise during the past month?
    1. Activity named, specify: _____
    8. Don't know/not sure (skip to question 16)
    9. Refused (skip to question 16)

Ask question 13 only if answer to question 12 is running, jogging, walking or swimming. All others go to question 14.

13. How far did you usually walk/run/jog/swim?
    1. Miles and tenths

14. How many times per week or per month did you take part in this activity?
    1. Times per week (specify # per week next question)
    2. Times per month (specify # per month next question)
    8. Don't know/not sure (skip to question 15)
    9. Refused (skip to question 15)

15. And when you took part in this activity, for how many minutes or hours did you usually keep at it?
    1. Hours and minutes

Section D: WEIGHT CONTROL The next few questions are about efforts to lose weight.

16. Are you now trying to lose weight?
    1. Yes
    2. No (skip to question 19)
    8. Don't know/not sure (skip to question 19)
    9. Refused (skip to question 19)

17. Are you eating fewer calories to lose weight?
    1. Yes
    2. No
    8. Don't know/not sure
    9. Refused

18. Have you increased your physical activity to lose weight?
    1. Yes
    2. No
    8. Don't know/not sure
    9. Refused

Section E: TOBACCO USE Now I'd like to ask you a few questions about cigarette smoking.

19. Have you smoked at least 100 cigarettes in your entire life?
    1. Yes
    2. No (skip to question 25)
    8. Don't know/not sure (skip to question 25)
    9. Refused (skip to question 25)

20. About how old were you when you first started smoking cigarettes fairly regularly?
    1. Code age in years

21. Do you smoke cigarettes now?
    1. Yes
    2. No (skip to question 24)
    8. Don't know/not sure (skip to question 25)
    9. Refused (skip to question 25)

22. On the average, about how many cigarettes a day do you now smoke?
    1. Number of cigarettes
    2. Don't smoke regularly

23. During the past 12 months, have you quit smoking for 1 day or longer?
    1. Yes (skip to question 25)
    2. No (skip to question 25)
    8. Don't know/not sure (skip to question 25)
    9. Refused (skip to question 25)

24. About how long has it been since you last smoked cigarettes regularly?
    1. Less than 1 month
    2. 1 Month to less than 3 months
    3. 3 Months to less than 6 months
    4. 6 Months to less than 1 year
    5. One year to less than 5 years
    6. Five or more years
    8. Don't know/not sure
    9. Refused

Section F: ALCOHOL CONSUMPTION These next few questions are about the use of beer, wine, wine coolers, cocktails or liquor, such as vodka, gin, rum, or whiskey--all kinds of alcoholic beverages that people drink at meals, special occasions or when just relaxing.

25. Have you had any beer, wine, wine coolers, cocktails, or liquor during the past MONTH, that is since (GIVE DATE)?
    1. Yes
    2. No (skip to question 30)
    8. Don't know/not sure (skip to question 30)
    9. Refused (skip to question 30)

26. During the past month, how many days per week or per month did you drink any alcoholic beverages, on the average?
    1. Answer is in days per week (specify days at next question)
    2. Answer is in days per month (specify days at next question)
    8. Don't know/not sure (skip to question 28)
    9. Refused (skip to question 28)

27. A drink is 1 can or bottle of beer, 1 glass of wine, 1 can or bottle of wine cooler, 1 cocktail, or 1 shot of liquor. On the days when you drank, about how many drinks did you drink on the average?
    1. Number of drinks

28. How many times during the past month did you have 5 or more drinks on an occasion?
    1. Number of times
    2. None
    8. Don't know/not sure
    9. Refused

29. And during the past month, how many times have you driven when you've had perhaps too much to drink?
    1. Number of times
    2. None
    8. Don't know/not sure
    9. Refused

Section G: PREVENTIVE HEALTH PRACTICES Some people visit a doctor for a routine checkup, even though they are feeling well and have not been sick.

30. About how long has it been since you last visited a doctor for a routine checkup?
    1. Within the past year (0 to 12 months ago)
    2. Within the past two years (13 to 24 months ago)
    3. Within the past five years (25 to 60 months ago)
    4. More than five years ago (61+ months ago)
    5. Never
    8. Don't know/not sure
    9. Refused

31. Have you ever had your blood cholesterol checked?
    1. Yes
    2. No (skip to question 36)
    8. Don't know/not sure (skip to question 36)
    9. Refused (skip to question 36)

32. About how long has it been since you last had your blood cholesterol checked?
    1. Within the past year (0 to 12 months ago)
    2. Within the past two years (13 to 24 months ago)
    3. Within the past five years (25 to 60 months ago)
    4. More than five years ago (61+ months ago)
    8. Don't know/not sure
    9. Refused

33. Have you ever been told your blood cholesterol level, in numbers?
    1. Yes
    2. No (skip to question 35)
    8. Don't know/not sure (skip to question 35)
    9. Refused (skip to question 35)

34. What is your blood cholesterol level?
    1. Record number
    8. Don't know/not sure
    9. Refused

35. Have you ever been told by a doctor or other health professional that your blood cholesterol is high?
    1. Yes
    2. No
    8. Don't know/not sure
    9. Refused

36. Next, I'd like to ask you about diabetes, sometimes called sugar diabetes. Have you ever been told by a doctor that you have diabetes?
    1. Yes
    2. No
    8. Don't know/not sure
    9. Refused

Section H: HEALTH INSURANCE These next questions are about health care plans which include health insurance, pre-paid plans such as HMO's (Health Maintenance Organizations) or government plans such as Medicare.

37. Do you have any kind of health care plan?
    1. Yes
    2. No (skip to question 41)
    8. Don't know/not sure (skip to question 41)
    9. Refused (skip to question 41)

38. For hospital bills, does your health care plan cover all, most, some or none of your expenses?
    1. All
    2. Most
    3. Some
    4. None
    8. Don't know/not sure
    9. Refused

39. For visits to a doctor's office when you are sick, does your health care plan cover all, most, some, or none of your expenses?
    1. All
    2. Most
    3. Some
    4. None
    8. Don't know/not sure
    9. Refused

40. When you are not sick, does your health care plan cover all, most, some, or none of your check-ups or other preventive services?
    1. All
    2. Most
    3. Some
    4. None
    8. Don't know/not sure
    9. Refused

41. Was there a time during the last 12 months, when you needed to see a doctor but could not, due to the cost?
    1. Yes
    2. No
    8. Don't know/not sure
    9. Refused

Section I: Demographics These next few questions ask for a little more information about yourself.

42. How old were you on your last birthday?
    1. Code age in years

43. What is your race? Would you say White, Black, Asian, Pacific Islander, Aleutian, Eskimo, American Indian, or something else?
    1. White
    2. Black
    3. Asian or Pacific Islander
    4. Aleutian, Eskimo or American Indian
    5. Other, specify: _____
    8. Don't know/not sure
    9. Refused

44. Are you of Hispanic origin such as Mexican American, Latin American, Puerto Rican or Cuban?
    1. Yes
    2. No
    8. Don't know/not sure
    9. Refused

45. What is the highest grade or year of school you completed?
    1. Eighth grade or less
    2. Some high school
    3. High school grad or GED certificate
    4. Some technical school
    5. Technical school graduate
    6. Some college
    7. College graduate
    8. Post grad or professional degree
    9. Don't know/refused

46. Are you currently?
    1. Employed for wages
    2. Self employed
    3. Out of work for more than 1 year
    4. Out of work for less than 1 year
    5. Homemaker
    6. Student
    7. Retired
    9. Don't know/refused

47. Are you married, divorced, widowed, separated, never been married, or a member of an unmarried couple?
    1. Married
    2. Divorced
    3. Widowed
    4. Separated
    5. Never been married
    6. A member of an unmarried couple
    9. Don't know/refused

48. Which of the following categories best describes your annual household income from all sources?
    1. Less than $10,000
    2. $10,000 To less than $15,000
    3. $15,000 To less than $20,000
    4. $20,000 To less than $25,000
    5. $25,000 To less than $35,000
    6. $35,000 To $50,000
    7. Over $50,000
    8. Don't know/not sure
    9. Refused

49. About how much do you weigh without shoes?
    1. Weight (in pounds)
    8. Don't know/not sure
    9. Refused

50. About how tall are you without shoes?
    1. Height (in feet and inches)
    8. Don't know/not sure
    9. Refused

51. Indicate sex of respondent.
    1. Male (skip to question 65)
    2. Female

Section J: WOMEN'S HEALTH These next questions are about mammograms, which are x-ray tests of the breast to look for cancer.

52. Have you ever had a mammogram?
    1. Yes
    2. No (skip to question 56)
    8. Don't know/not sure (skip to question 56)
    9. Refused (skip to question 56)

53. About how long has it been since you had your last mammogram?
    1. Within the past year (0 to 12 months ago)
    2. Within the past two years (13 to 24 months ago)
    3. Within the past five years (25 to 60 months ago)
    4. More than five years ago (61+ months ago)
    8. Don't know/not sure
    9. Refused

54. Was your last mammogram done as part of a routine checkup, because of a breast problem, or because you've already had breast cancer?
    1. Routine checkup
    2. Breast problem
    3. Had breast cancer
    8. Don't know/not sure
    9. Refused

55. Whose idea was it for you to have this last mammogram--was it your idea, your doctor's idea, or someone else's idea?
    1. Respondent's idea
    2. Doctor's idea
    3. Someone else's idea
    8. Don't know
    9. Refused

56. Have you ever had a breast physical exam by a doctor or a medical assistant?
    1. Yes
    2. No (skip to question 59)
    8. Don't know/not sure (skip to question 59)
    9. Refused (skip to question 59)

57. About how long has it been since your last breast physical exam?
    1. Within the past year (0 to 12 months ago)
    2. Within the past two years (13 to 24 months ago)
    3. Within the past five years (25 to 60 months ago)
    4. More than five years ago (61+ months ago)
    8. Don't know/not sure
    9. Refused

58. Was your last breast physical exam done as part of a routine checkup, because of a breast problem, or because you've already had breast cancer?
    1. Routine checkup
    2. Breast problem
    3. Had breast cancer
    8. Don't know/not sure
    9. Refused

59. Have you ever heard of a pap smear test?
    1. Yes
    2. No (skip to question 62)
    8. Don't know/not sure (skip to question 62)
    9. Refused (skip to question 62)

60. Have you ever had a pap smear?
    1. Yes
    2. No (skip to question 62)
    8. Don't know/not sure (skip to question 62)
    9. Refused (skip to question 62)

61. When did you have your last pap smear?
    1. Within the past year (0 to 12 months ago)
    2. Within the past two years (13 to 24 months ago)
    3. Within the past five years (25 to 60 months ago)
    4. More than five years ago (61+ months ago)
    8. Don't know/not sure
    9. Refused

62. Have you had a hysterectomy?
    1. Yes (skip to question 65)
    2. No
    8. Don't know
    9. Refused

63. To your knowledge, are you now pregnant?
    1. Yes
    2. No (skip to question 65)
    8. Don't know/not sure (skip to question 65)
    9. Refused (skip to question 65)

64. During what month is your baby due?
    1. Code month
    8. Don't know/not sure
    9. Refused

Section K: AIDS These next few questions are to determine your beliefs and opinions about the national health problem of AIDS.

65. Have you ever heard the AIDS virus called by the name HIV?
    1. Yes
    2. No
    8. Don't know/not sure
    9. Refused

66. To your knowledge, are there drugs available which can lengthen the life of a person infected with the AIDS virus?
    1. Yes
    2. No
    8. Don't know/not sure
    9. Refused

67. Do you think a person who is infected with the AIDS virus can look and feel well and healthy?
    1. Yes
    2. No
    8. Don't know/not sure
    9. Refused

68a. Do you think a person can get infected with AIDS or the AIDS virus from donating blood?
    1. Yes
    2. No
    8. Don't know/not sure
    9. Refused

68b. Do you think a person can get infected with AIDS or the AIDS virus from being cared for by a nurse, doctor, dentist, or other health care worker who has the AIDS virus?
    1. Yes
    2. No
    8. Don't know/not sure
    9. Refused

69. Do you think a pregnant woman who has the AIDS virus can give it to her baby?
    1. Yes
    2. No
    8. Don't know/not sure
    9. Refused

70. Do you have a child or children in kindergarten through eighth grade?
    1. Yes
    2. No (skip to question 73)
    8. Don't know/not sure (skip to question 73)
    9. Refused (skip to question 73)

71. Would you allow your child to be in the same classroom with a child who is infected with the AIDS virus?
    1. Yes
    2. No
    8. Don't know/not sure
    9. Refused

72. At what grade do you think your child should begin AIDS education in school?
    1. Code grade
    8. Don't know/not sure
    9. Refused

73. Would you eat in a restaurant where the cook is infected with the AIDS virus?
    1. Yes
    2. No
    8. Don't know/not sure
    9. Refused

74. Would you be willing to work with a person who is infected with the AIDS virus?
    1. Yes
    2. No
    8. Don't know/not sure
    9. Refused

75. Where could you go to be tested for the AIDS virus infection?
    1. Record Facility Code

75b. Where else could you go? (Note: list is not read)
    1. Private doctor, HMO
    2. Blood bank, plasma center, Red Cross
    3. Health department
    4. AIDS clinic, AIDS testing site
    5. Hospital, emergency room
    6. Family planning clinic
    7. STD clinic
    8. Community health clinic, primary care clinic
    9. Company or industry clinic
    10. Military induction or examination
    11. Other
        Don't know/not sure
        Refused

76. Some people use condoms to keep from getting the AIDS virus through sexual activity. How effective do you think using a condom is in preventing getting the AIDS virus through sexual activity?
    1. Very effective
    2. Somewhat effective
    3. Not at all effective
    4. Don't know how effective
    5. Don't know method
    8. Don't know--unspecified
    9. Refused

Section L: FRUITS AND VEGETABLES These next questions are about the foods you usually eat or drink. Please tell me how often you eat or drink each one--for example, twice a week, three times a month, and so forth. Remember, I am only interested in the foods you eat. Include all foods you eat, both at home and away from home.

77. How often do you drink fruit juices such as orange, grapefruit, or tomato?
    1. Per day, specify _____
    2. Per week, specify _____
    3. Per month, specify _____
    4. Per year, specify _____
    5. Never
    8. Don't know/not sure
    9. Refused

78. Not counting juice, how often do you eat FRUIT?
    1. Per day, specify _____
    2. Per week, specify _____
    3. Per month, specify _____
    4. Per year, specify _____
    5. Never
    8. Don't know/not sure
    9. Refused

79. How often do you eat green salad?
    1. Per day, specify _____
    2. Per week, specify _____
    3. Per month, specify _____
    4. Per year, specify _____
    5. Never
    8. Don't know/not sure
    9. Refused

80. How often do you eat potatoes--not including french fries, fried potatoes, or potato chips?
    1. Per day, specify _____
    2. Per week, specify _____
    3. Per month, specify _____
    4. Per year, specify _____
    5. Never
    d. Don't know/not sure
    9. Refused

81. How often do you eat carrots?
    1. Per day, specify _____
    2. Per week, specify _____
    3. Per month, specify _____
    4. Per year, specify _____
    5. Never
    8. Don't know/not sure
    9. Refused

82. Not counting carrots, potatoes or salad, how many SERVINGS of vegetables do you usually eat? For example, a serving of vegetables at both lunch and dinner would be two servings.
    1. Per day, specify _____
    2. Per week, specify _____
    3. Per month, specify _____
    4. Per year, specify _____
    5. Never
    8. Don't know/not sure
    9. Refused

83. How many telephone NUMBERS will reach this household, including the number I used today?
    1. One number only (skip to end)
    2. More than one number, specify how many #s: _____
    8. Don't know/not sure (skip to end)
    9. Refused (skip to end)

84. Could you please tell me the other numbers that reach this household?
    1. The number of other telephone numbers
    8. Don't Know
    9. Refused

That's my last question. Let me emphasize that your answers cannot be identified with your name. Everyone's answers will be combined to give us information about the health practices of people in this state. Thank you very much for your time and cooperation.

Appendix II

Procedure for generating weights for adjustment:

1. Compute the raw weights as the number of adults in the household divided by the number of different telephone numbers that will reach the household. (These data were obtained in the interview.)

2. Compute the cluster size adjustments as the expected cluster size divided by the actual cluster size. (These data are available from the survey organization.)

3. Compute the base weight for each subject as the raw weight times the cluster size adjustment.

4. Define cells based on age/sex, such that there are at least 10 subjects in each cell. (See Table II on page 7 for cells used in this analysis.) Tabulate statewide population data for each cell.

5. For each cell, compute the post-stratification weight as the state population within that cell divided by the sum of the base weights within the same cell.

6. For each subject, the final weight is calculated as the base weight for that subject times the post-stratification weight for the cell which that subject falls within.

Appendix III

Demographic Summary

Figures 66-73 show the demographic characteristics of the respondents, weighted to reflect the distribution of the 1990 Massachusetts population. The only variable with a notable percentage of records with missing information was annual household income, with 9% reporting that they either did not know their household income or refused to answer the question.

Sociodemographic features of the 1991 weighted BRFSS data:

- Over 45% of the population was between the ages 25 and 44 years.
- There was a 9% increase in the number of respondents from 1990 to 1991 (1296 versus 1416 respondents).
- The population of Massachusetts is predominately white and resides mainly in eastern Massachusetts.
- 55% of the population was married and nearly 60% were employed.
- The number of unemployed male respondents jumped from 5% in 1990 to 10% in 1991 which is consistent with the economic recession occurring in New England during this time.
- Over 80% of the population had completed high school or obtained a Graduate Equivalency Diploma (GED), nearly 30% had completed college with close to 10% having received an advanced degree.
- 19% reported their annual household income as below $15,000, 31% reported incomes between $15,000 and $34,999, and 41% reported incomes in excess of $35,000.

Figure 66

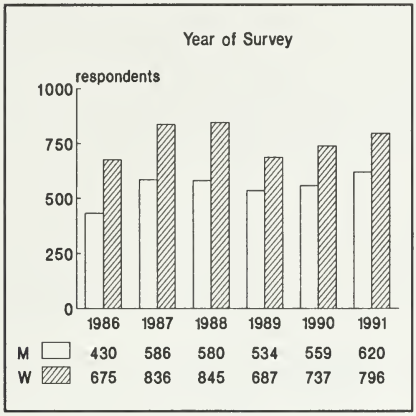
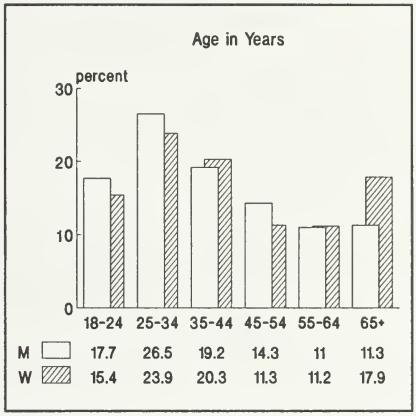


Figure 67



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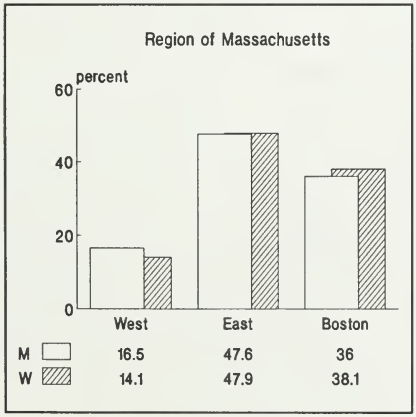

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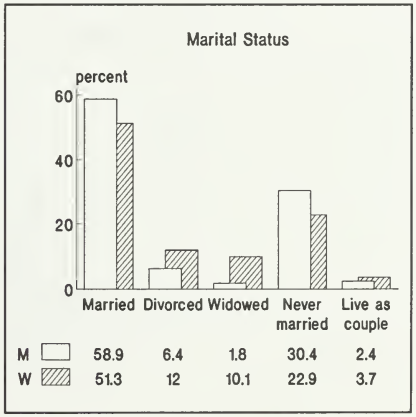
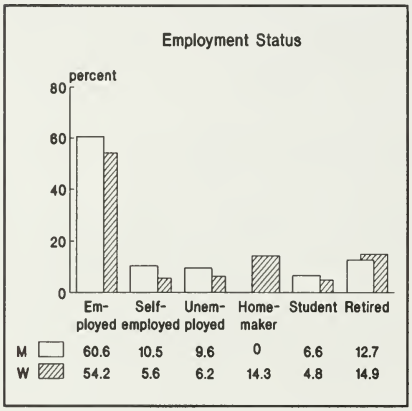


Source: Massachusetts Department of Public Health, Chronic Disease Surveillance Program, BRFSS, 1991.

Figure 70



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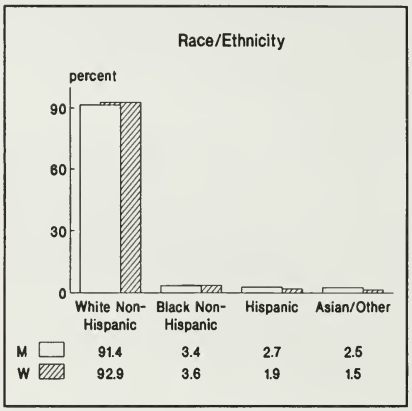

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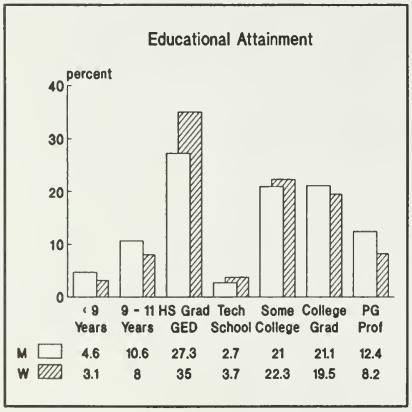
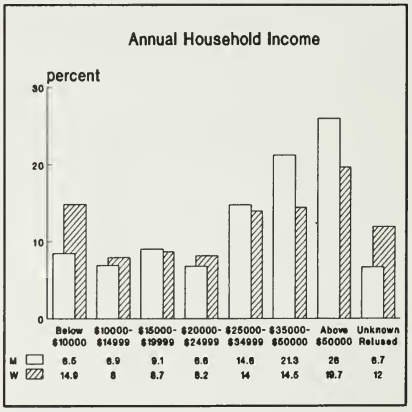


Figure 73



Source: Massachusetts Department of Public Health, Chronic Disease Surveillance Program, BRFSS, 1991.

Appendix IV

This table provides annual prevalence estimates and 95% confidence intervals for selected risk factors. These estimates were calculated by the federal Centers for Disease Control and Prevention (CDC), the funding agency and analytic resource for the national BRFSS program. The confidence intervals were calculated using a software package called SUDAAN, Software for Survey Data Analysis, developed by the Research Triangle Institute. This package was available beginning in 1987.

The prevalence estimates presented in this table were provided by the CDC. These estimates differ slightly from those presented in this report because the CDC used weights which adjust the data to yearly population estimates while this report weighted all years of data to the 1990 population using the modified 1990 census. (See Appendix II.)

In order to estimate the statistical significance of prevalence changes over time, the 95% confidence intervals may be compared. If two intervals do not overlap, then one may conclude that the associated prevalence estimates are significantly different at $p < .05$ level of significance. For example, one may say that the prevalence of chronic drinking has decreased significantly between 1987 and 1990 because the confidence intervals do not overlap.

Confidence intervals not shown in this table may be obtained by contacting the Chronic Disease Surveillance Program, Massachusetts Department of Public Health.

Table 3. Annual Massachusetts Prevalence Estimates* with 95% Confidence Intervals for Selected Risk Factors.

Selected Risk Factors	1987	1988	1989	1990	1991
Seat Belt Non-Use %	45.4	49.6	45.4	46.4	42.8
95% CI	42.4-48.4	46.7-52.5	45.4-51.7	43.3-49.4	39.9-45.6
Current Smoking %	26.6	26.4	23.6	21.6	22.5
95% CI	23.8-29.0	23.6-29.1	20.9-26.4	21.0-26.2	20.2-24.9
Binge Drinking %	20.6	18.4	21.0	18.3	20.1
95% CI	18.1-23.0	15.9-20.9	18.3-23.7	15.9-20.8	17.8-22.3
Chronic Drinking %	8.8	7.5	5.1	5.1	5.2
95% CI	7.0-10.6	5.9-9.1	4.5-7.7	3.8-6.5	3.8-6.5
Drive After Drinking %	4.2	4.6	3.3	2.7	2.5
95% CI	2.9-5.5	3.3-6.0	2.2-4.4	1.8-3.6	1.7-3.3
No & Irregular Physical Activity+ %	56.3	52.9	54.6	49.6	52.6
95% CI	53.3-59.2	50.0-55.9	51.5-57.7	46.4-52.8	49.8-55.5
Overweight %	19.2	21.4	20.1	18.9	21.1
95% CI	16.9-21.5	18.9-23.8	17.6-22.5	16.5-21.3	18.7-23.4
Unchecked Cholesterol in 5 Years %	N/A	N/A	N/A	N/A	68.0
95% CI					65.3-70.7
Checked Blood Pressure in 2 Years %	N/A	N/A	N/A	N/A	95.1
95% CI					93.9-96.4
Ever Mammography among Women aged 40+ %	N/A	N/A	N/A	74.4	79.2
95% CI				70.3-78.6	74.7-83.6
No Health Insurance %	N/A	N/A	N/A	N/A	9.30
95% CI					7.52-11.08
Ever Pap Smear %	N/A	N/A	N/A	N/A	92.0
95% CI					89.7-94.3

Source: Estimates computed by the Centers for Disease Control and Prevention and presented in "1991 BRFSS Summary Prevalence Report".

* Prevalence estimates were weighted to the yearly Massachusetts population and may differ from estimates reported elsewhere in this report.

+ Prevalence estimates includes residents who participated in no and *irregular* physical activity and will be greater than estimates reported elsewhere in this report.

Massachusetts Behavioral Risk Factor Survey
1991 Summary Report

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